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*Archives of*

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*Official Journal*

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VOLUME XXXV

FEBRUARY, 1954

NO. 2

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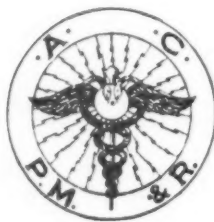
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Volume XXXV

No. 2

## ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION

(Formerly Archives of Physical Medicine)

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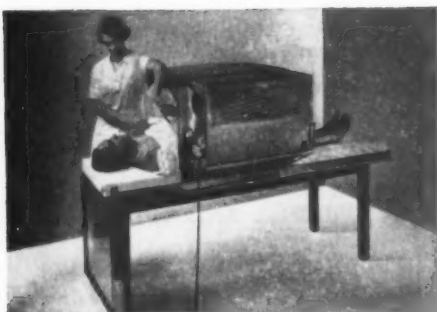
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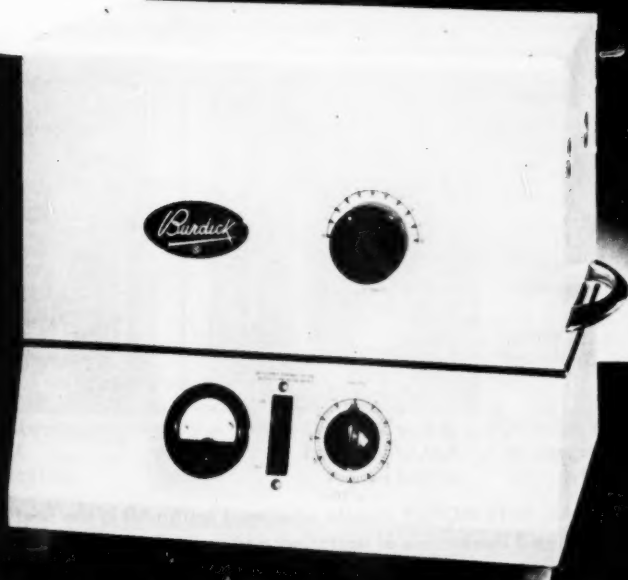
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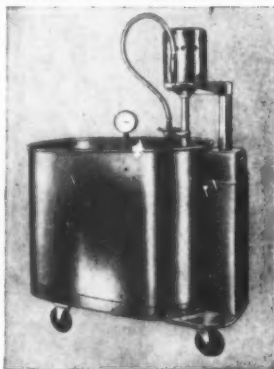
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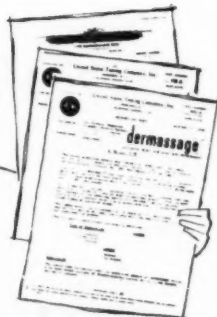
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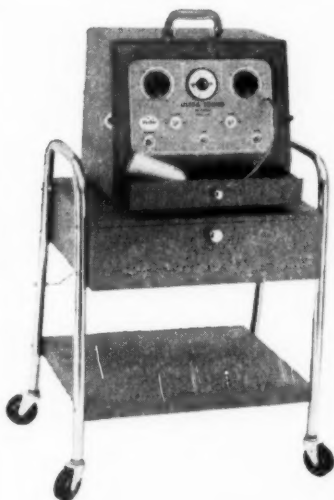
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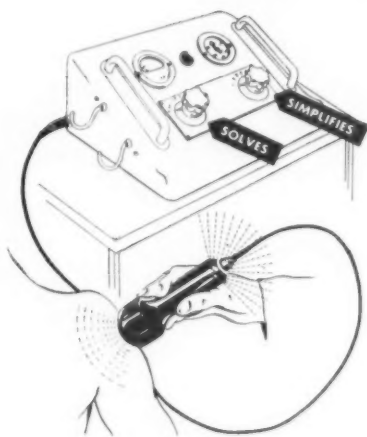
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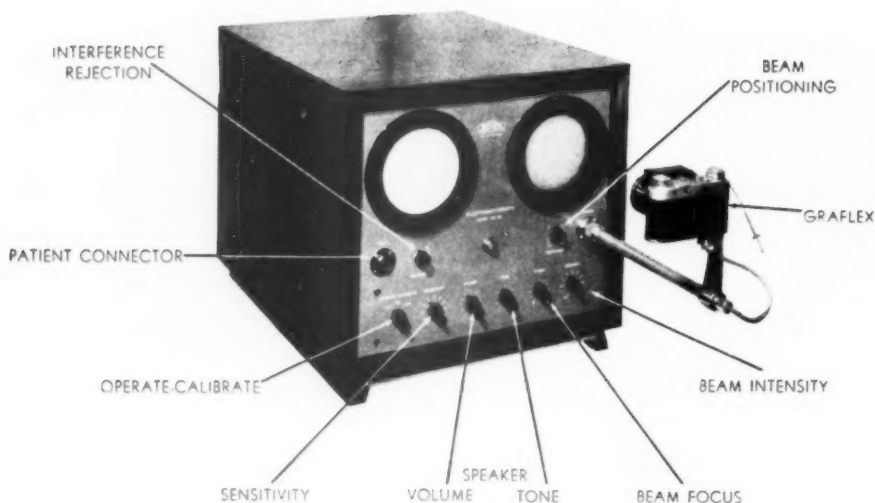


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# The Results of a Combined Medical and Rehabilitative Program in Tuberculosis.

## A Preliminary Report.

ALBERT HAAS, M.D.  
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and  
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NEW YORK, N. Y.

### Introduction

Recent developments in treatment have radically reduced the mortality rate from tuberculosis. Because of the nature of the disease, this leaves a significantly large number of chronic cases that are subject to relapse. While this trend has been steadily increasing since the start of the century, the type of therapeutic program offered in the vast majority of tuberculosis institutions has changed little from the days when the diagnosis of this disease meant certain death for the greater number of patients. The treatment still remains largely medical in nature, emphasizing the preservation of the patient's life. While this is admittedly an essential and primary aim, it falls short of adequate and comprehensive treatment in its modern form. From our point of view, treatment which does not include a good rehabilitation program is inadequate treatment. The treatment of tuberculosis is successful when the patient is returned to a normal life and the disease remains stabilized. All of the services that contribute to the total rehabilitation of the patient should have this as their goal. However, the large number of beds being used for readmission of relapsed cases is proof of our shortcoming in this respect.

Current opinion is that the patient

who has had the advantages of a rehabilitation program in the hospital, and after discharge, has a significantly greater chance of avoiding a reactivation of the disease than does the non-rehabilitant. With the appalling shortage of tuberculosis beds, it is logical to do as much as possible to make certain that once a patient is discharged there will be no need to resume treatment.

It is sound to invest what additional funds and personnel are necessary in order to render as comprehensive a service as is possible. If we continue to render only a physical restoration service, a point will be reached when additional funds for purely medical services will cease to profit the community, since such funds will be spent repeatedly on the same cases each time they relapse. In tuberculosis, rehabilitation is both treatment and preventive medicine. If rehabilitation care can aid in avoiding a relapse, it will be a non-recurring expenditure, freeing additional funds for equally complete service to other cases.

The results obtained through this all-inclusive program of treatment can be easily destroyed by an emotional conflict, a difficult home situation, or the lack of a suitable job. To be effective, rehabilitation must start under favorable conditions at the time of diagnosis; continue as part of the prescribed routine and assume the major responsibility for the period between discharge and the vocational adjustment.

The general approach to the rehabilitation of the chronically or acutely disabled is: a) to obtain maximum restoration toward normal, and b) to make the most of the residual ability and attempt to restore the patient to a life of rela-

Read at the Thirty-first Annual Session of the American Congress of Physical Medicine and Rehabilitation, Chicago, September 1, 1953.

Physician in Charge of Chest Rehabilitation, New York University-Bellevue Medical Center, New York.

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Rehabilitation Counselor, Bellevue Hospital, New York.

This program was a joint endeavor by the Physical Medicine and Rehabilitation Department of New York University in conjunction with the Chest Service, Bellevue Hospital, New York.

tively useful activity.

There is no reason to assume that these aims are not as worthy in the field of tuberculosis as in other types of chronic disabilities, but certain differences must be appreciated between tuberculosis and the large group of static disabilities such as hemiplegia and paraplegia. Tuberculosis is, as pointed out, not only a chronic disease but one with potentialities for relapse and progression. Whatever our immediate aims in rehabilitation of the tuberculous patient, they must always be implemented in a way that relapse may be prevented.

In tuberculosis, our purpose is twofold:

1. The physical rehabilitation of the tuberculosis post-operative cases—since excisional and collapse surgery are of increasing importance in the treatment of pulmonary tuberculosis, and since the operative procedure is often potentially devastating from a functional point of view, the need for preventive and corrective measures is obvious. In this field, we have attained gratifying results through serial pre- and post-operative exercises, individualized in each case to combat the anticipated handicap.
2. The vocational rehabilitation of the patient with stabilized or arrested tuberculosis—the working capacity of these people is primarily a question of medical evaluation. They may be classified in three categories: a) those who can go back to their previous vocation; for them it is just a question of being progressively reconditioned, under medical supervision, to a working day of eight hours; b) those who can resume activities but whose former vocation is not suitable for their residual physical tolerance and who must learn a new skill, technical or professional. In this group (as well as in the others), we must take into consideration the psychological factors, such as the personality and aptitudes of the individual and his general cultural, educational, and occupational qualifications. Envi-

ronmental factors must receive equal consideration, socio-economic factors are of serious import, and c) the unskilled workers, "common laborers," who require training similar to those in group b).

Our objective is not merely to restore working capacity but also to prepare patients for a vocation which will yield sufficient income to enable them to live without undue physical and mental strain.

When maximum possible physical rehabilitation has been attained and when the case can be classified medically as definitely "arrested" by all established criteria, our next step is to assist the individual in becoming a productive and happy member of society. Adjustment of the individual to a tolerable level of physical and mental strain requires evaluation of his physical and intellectual qualifications, his capacity to learn new skills, and his psychological motivations.

#### Medical Aspect

When can a tuberculous patient be considered as stabilized? This is the first rehabilitation problem. How do we ascertain that the disease has reached the stage enabling the patient to go back to normal life? Therein lies the whole complex problem of the course of any given case of pulmonary tuberculosis. The number and complexity of factors in tuberculosis serve to make prognosis a problem more difficult than diagnosis since the latter, mostly objective, depends exclusively upon factual data; whereas, the former requires similar analytic evaluation plus a great deal of interpretive study of specific environmental factors. The tendency of the disease to relapse is a primary characteristic. The causes are manifold and still only dimly understood, but they are basically dependent on the recognized inter-relationship between the tubercle bacillus and the host. The bacillus is long-lived and adaptable to varying environments. The host reaction varies from individual to individual and from day to day.

The clinical difficulties of establishing

definite termination of infection renders hazardous and inadvisable any attempt to define criteria for prediction of the final outcome of any given and apparently arrested disease. Admittedly premature pronouncement of a cure is most undesirable. Although the variables inherent in the complex host-parasite relationship cannot be clearly determined, one possible approach may lie in an analytical study of the medical history and social phase of patients suffering one or more relapses. The medical history of a given case reflects the behavior of the disease in relation to treatment and rehabilitation during hospitalization and after discharge. "Social phase" encompasses the various psycho-social forces to which the individual is subjected, e. g., financial, nutritional, occupational, emotional, recreational; any one of these forces is capable of causing stress situations for the tuberculous patient during the post-discharge period.

A comprehensive investigation along these lines may reveal additional previously undetermined factors as contributory causes leading to a breakdown. Evaluation of significant correlations between relapse and various medical and extra-medical data may well lead to the application of specific procedures designed to control the disease and to maintain the favorable status of a discharged patient.

#### Post-Operative Cases

Here the task is more complicated in that a double problem is faced: the ravages of the disease itself plus the damage caused by surgical intervention (resection, thoracoplasty, etc.). For example, a frequently necessary but quite severely damaging operation is "the seven rib thoracoplasty," wherein the surgeon is forced to destroy important muscles and to resect ribs and often the transverse processes of the vertebrae with their attached ligaments, thereby upsetting muscular balance which may lead to marked torsion of the spine with scoliosis. Rehabilitation exercises, wisely planned and intelligently applied pre-operatively and resumed post-operative-

ly, aim to anticipate and thereby prevent the distorting deformities.

a) *Pre-operative*: The physical therapist explains the routine selected exercises, e. g., how to breathe diaphragmatically, the positions the patient must assume and the exercises necessary to restore complete range of motion.

b) *Post-operative*: Twenty-four hours after the operation assistive exercises are started. These are increased gradually in number and duration, keeping in mind that these are tuberculous patients who should not be over exerted. Between each exercise there are a few seconds relaxation. The exact number of movements varies; depending upon the condition of the patient, his degree of cooperation and the judgment of the physical therapist specialized in the field of endeavor.

#### Social Problem and Psychological Aspect

Few diseases cause so great an alteration in the patient's customary mode of living as does tuberculosis. The tuberculous patient who is hospitalized for treatment is often faced with numerous social and economic problems and with the necessity of adjusting to a new situation that few individuals can accept in stride. Indeed, it is the patient's reaction to these enforced changes in his life pattern that causes the difficulties all too frequently encountered in the therapy of tuberculosis. In order to render a comprehensive service for the patient, the hospital or sanatorium should be equipped to deal with the problems that arise from the long separation from family and friends, the stigma of having what is perhaps one of the least socially acceptable types of disease, the abrupt end of employment with its consequent loss of income and feeling of futility, the doubts about regaining good health and avoiding reactivation of the disease, and the many questions about what the future may hold in tangible and in intangible terms. Such questions may be raised by the patient, or they may re-



main unspoken—and constitute a deterrent to progress even with optimum medical care.

The task of the rehabilitation coordinator is to be cognizant of the aforementioned problems, whether conscious or subconscious, and to endeavor to meet them effectively. This is not merely a technic, or a series of technics, but rather an orientation which dictates a course of action, implemented by competent professional services, including modern psychotherapeutic approaches. While rehabilitation is a relatively new concept, it has not gone untried in the case of the tuberculous patient. Being new, the rehabilitative approach is bound to be faulty, and in need of refinement of approach. Meanwhile there is much skepticism among medical and non-medical personnel, making it difficult to gain acceptance for the establishment of the new program.

#### General Rehabilitation

The scope and variety of extra-medical services comprising the rehabilitation program will be dictated by the composition of the patient population and the nature of their needs. While the ideal program would offer services in the areas of vocational counseling, social service, clinical psychology, occupational therapy, education, and recreation, the exact planning of these services will differ according to the indicated needs in any specific setting. In addition, rehabilitation has true meaning only in terms of an individualized approach to the particular patient's needs, as contrasted to a routine approach which may lavish unnecessary and unwanted services on some patients, while failing to provide needed assistance for others. Just as we evaluate a patient's medical condition and prescribe a course of treatment in accordance with our findings, so must we evaluate a patient's rehabilitation problem and prescribe services that will contribute to the solution of the latter.

#### Bellevue Hospital Program

The Bellevue Hospital starts with the

safe assumption that present-day therapeutic methods of caring for the tuberculous have been conscientiously carried out. The rehabilitation procedures, of necessity, are governed by the patient's residual status which is clinically determined. We are submitting specific data based on a statistical study of fifty cases, treated with drugs and/or surgery. We do not claim to present the best or the only possible pattern for a successful rehabilitation program. However, we believe that we have begun an in-hospital program that contributes significantly to the problem of stabilization and avoidance of a relapse.

The program is a joint endeavor of the Physical Medicine and Rehabilitation Department, New York University-Bellevue Medical Center, and with the Chest Service, Bellevue Hospital. The Tuberculosis Rehabilitation wards at Bellevue Hospital consist of forty-four available beds (routinely filled to capacity) with a predetermined clinical distribution of ten per cent minimal involvement; sixty per cent moderately advanced, and thirty per cent advanced cases.

The cases are selected on the basis of relatively young age and indications that the patient will benefit from the type of medical and rehabilitation service offered. We attempt to accomplish our purpose through a threefold approach of:

1. Establishing a high patient morale, to the end that patients will adhere eagerly to their treatment program rather than leave voluntarily against medical advice when the rigors of continued hospitalization seem too overwhelming to endure;
2. Making the period of hospitalization a constructive experience of positive value, rather than merely a void in the patient's life from which he will derive nothing of future worth;
3. Effecting a plan for total rehabilitation so that the patient will have realistic goals to strive for and will be equipped in the best possible manner to achieve them.



### Medical and Rehabilitation Program

When the patient is admitted to the rehabilitation unit and treatment has been prescribed, the rehabilitation program starts as follows:

1. Group health education, with free debate and discussion of the disease with audio-visual aids. This course is carried out for three weeks, with the participation of the staff including physician, rehabilitation counselor, recreation leader, occupational therapist, social worker, physical therapist and clinical psychologist.
2. When the patient's status allows for a start of activity, "bed" activity of a diversional type is prescribed, and is supervised by the occupational therapist, starting with one hour daily. Bathroom and dining room privileges are permitted. If continuous improvement is noted, the bed-activity is gradually increased to reach four hours daily.

Before the patient is allowed to take part in the ambulatory program, he has to fulfill the following signs of stabilization for a minimum of three months: a) disappearance of constitutional symptoms, with normal temperature and regaining of weight; b) disappearance of functional symptoms; c) stabilization of physical signs; d) stabilization of radiological signs; e) negative laboratory findings.

The ambulatory program consists of occupational therapy in the low energy-cost group, on the ward, with dining room and bathroom privileges, starting with one hour and gradually increased to four hours. At this point, patients who are candidates for surgery are transferred to the surgical ward. The non-surgical patients start the prevocational program in the occupational therapy shops. The physical therapist teaches the patient who is to undergo surgery the basic exercises which he will have to follow post-operatively. These exercises are divided into four parts: a) assistive exercises, when the movements are carried out entirely by the physical therapist; b) active

assistive exercises, when the patient carries out as much as he is capable of with the aid of the physical therapist; c) active exercises, when the patient carries out all the exercises on his own, and d) resistance exercises, when the patient carries out the exercises with added weight load.

The exercises are continued for one to two years, depending upon the individual cooperation. When the post-operative patient is returned to the clinical ward, he is prescribed one month of absolute bedrest with only the bathroom privilege. After that, the patient starts bedside rehabilitative activity, which is continued for three to five months. All thoracoplastic patients are given six months bedrest postoperatively and, then, depending on the success of the "collapse" and "progress of healing" either resume activity or are given an additional rest period. The start and intensity of the rehabilitative routine varies with the patient. If clinical data and x-ray findings are negative, the patient starts with recovery activity as follows:

#### ONE MONTH POST-OPERATIVE

##### ACTIVITY:

Bathroom and dining room privileges .....	2 hours
Bedrest .....	22 hours
Total .....	24 hours

#### TWO MONTHS POST-OPERATIVE

##### ACTIVITY:

O. T., Bedside, Prevocational .....	1 hour A.M. 1 hour P.M.	2 hours
Bathroom and dining room privileges .....	2 hours	
Bedrest .....	20 hours	
Total .....	24 hours	

#### THREE MONTHS POST-OPERATIVE

##### ACTIVITY:

O. T., Bedside .....	2 hours A.M. 1 hour P.M.	3 hours
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	19 hours	
Total .....	24 hours	

## FOUR MONTHS POST-OPERATIVE

## ACTIVITY:

O. T., Bedside.....	2 hours A.M.}	4 hours
	2 hours P.M.}	
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	18 hours	
Total .....	24 hours	

## FIVE MONTHS POST-OPERATIVE

## ACTIVITY:

Workshop		
Wheelchair transportation. 1 hour A.M.}	4 hours	
O. T., Ward, Bedside..... 3 hours P.M.}		
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	18 hours	
Total .....	24 hours	

## SIX MONTHS POST-OPERATIVE

## ACTIVITY:

Workshop		
Walking to shop..... 2 hours A.M.}	4 hours	
O. T., Ward, Bedside..... 2 hours P.M.}		
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	18 hours	
Total .....	24 hours	

## SEVEN MONTHS POST-OPERATIVE

## ACTIVITY:

Workshop		
Walking to shop..... 3 hours A.M.}	4 hours	
O. T., Ward, Bedside..... 1 hour P.M.}		
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	18 hours	
Total .....	24 hours	

## EIGHT MONTHS POST-OPERATIVE

## ACTIVITY:

Workshop .....	2 hours A.M.}	4 hours
Walking to shop.....	2 hours P.M.}	
Dining room and bathroom privileges .....	2 hours	
Bedrest .....	18 hours	
Total .....	24 hours	

When the patient is able to carry on four hours of daily activity, he is transferred to the sanatorium. There he is started on two hours of daily activity since four hours of hospital activity is much less of a physical strain than four hours of life in a sanatorium.

The patient is gradually brought up to eight hours of daily activity and finally discharged home. At this stage he is followed in the outpatient clinic. Our

patients are referred to community welfare agencies for assistance, in accordance with the recommendations of the physician and the rehabilitation counselor. Most of the vocational training that may be indicated is provided by the State Division of Vocational Rehabilitation. The patient is advised to start his vocational training with four hours daily activity, plus one hour traveling time, with progressive increase in working time.

## Special Study Group

Our follow-up is planned for 120 patients, in all the stages of tuberculosis as established by the National Tuberculosis Association. The group is composed of white, colored and Puerto Ricans. The age group varies between fourteen and fifty years. The average stay at Bellevue was twenty months and in the sanatorium six months. All patients receive drug therapy and/or surgery. Three patients were discharged to home care on their request after they had reached the stage of four hours daily activity in the hospital. Investigation showed that they had a good home where drug and rehabilitation routine would be carried out conscientiously.

A preliminary report follows of thirty months follow-up on our special study group treated as herein described.

The statistical breakdown of the patients' group is presented in the following five tables:

1. Clinical follow-up:	
Regularly seen in O.P.D.....	43
Contact through correspondence.....	7
Total .....	50
2. Average age: 30 years	
Marital Status:	
Single .....	20
Married .....	27
Divorced .....	3
Total .....	50
3. Occupational Status before Rehabilitation:	
Unskilled .....	32
Semi-skilled .....	5
Student .....	10
Housewife .....	1
Clerical .....	1
Professional .....	1
Total .....	50
4. Chemotherapy and Surgery:	
Drugs only .....	2
Pneumoperitoneum plus drugs.....	1
Pneumothorax plus drugs.....	2
Wedge resection plus drugs.....	3
Segmental resection plus drugs.....	25

Thoracoplasty, 7 ribs, plus drugs.....	5
Lobectomy plus T. P.....	7
Total .....	50
5. Economic Post-discharge Status:	
Training — workshop.....	29
Training — academic.....	7
Employed in New York.....	5
Employed in other states.....	7
Relapsed .....	2
Total .....	50

We find that our program has been effective as indicated by the degree of success achieved, but we believe that more can be learned about the efficacy of this approach by analyzing the two relapse cases.

### Relapse Cases

While all of our patients have had individually prescribed and medically supervised activity schedules, the common and distinguishing characteristics of the two relapse cases was that the amount of activity they undertook was greater than their condition permitted, whereas the patients in the successful group maintained an activity schedule consistent with their medical status.

**First Case: D. E. — Age 15 — male — student.**  
This white boy of fifteen has been known to have tuberculosis since he was eleven years of age. The

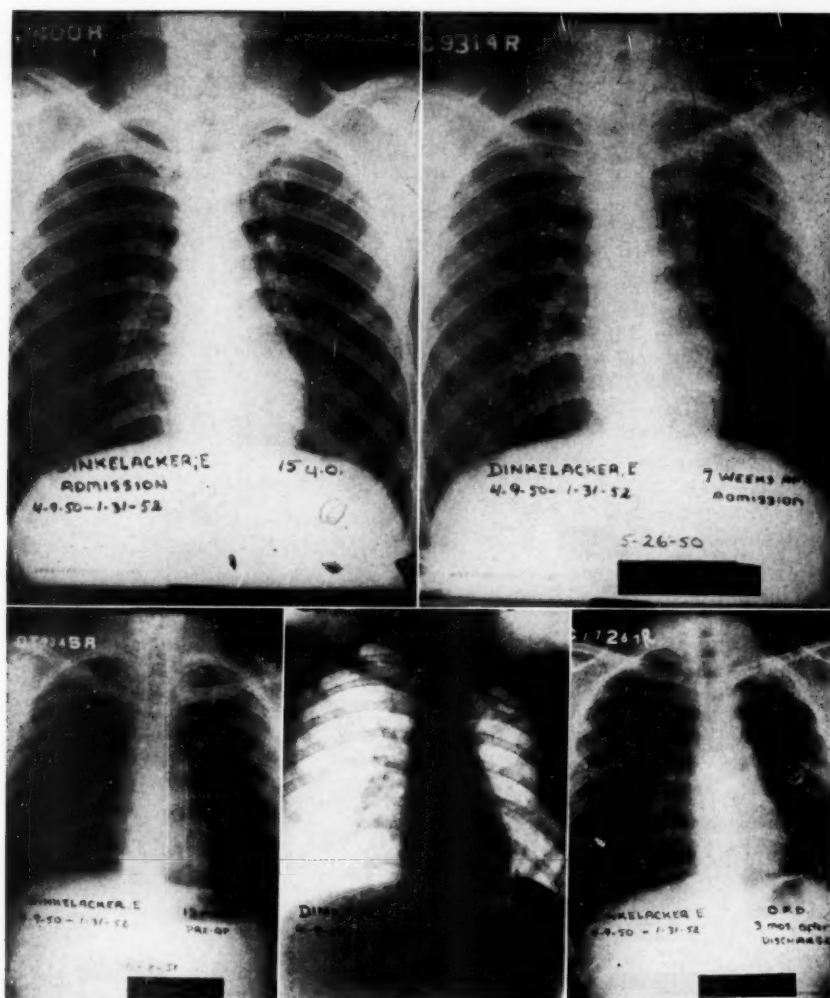


Fig. 1.

first symptom of his disease appeared as a small hemoptysis. The x-ray revealed scattered infiltration in the left apex. At this time he was hospitalized and treated only with bedrest for six months. He was discharged and followed in the out patient department, and he remained well for three and one-half years. He was readmitted to the hospital on April 9, 1950, when he brought up three cups full of brick red blood. X-rays on admission showed a soft infiltration on the left apex (fig. 1). After his readmission, he started on streptomycin and p-aminosalicylic acid. On March 23, 1951, the patient developed a tuberculous laryngitis. Streptomycin was increased, and one month later the laryngitis subsided. Patient was on drugs for sixteen months. On June 12, 1951, a left upper lobectomy was performed. During the operation, the main trunk of the pulmonary artery was damaged and ligatured. However, the patient's recovery from surgery was uneventful. During his Bellevue Hospital stay, except during the first four months, his sputum and gastric cultures were negative. On September 15, 1951, three months post-operatively, the patient was started on two hours of daily activity in the high school class. His activities were gradually increased to four hours. When trans-

ferred to the sanatorium on January 31, 1952, the patient continued on four hours of instruction plus self-care and recreation amounting to three additional hours of activity. Thus the patient had virtually seven hours of daily activity, despite our recommendation of a maximum of five hours. At this time the patient was radiologically, clinically and bacteriologically negative. In three months, he reached six hours of daily activity when a gastric lavage culture was reported as positive for acid fast bacilli. Instead of returning to complete bedrest for observation, he continued on his regular program until he reached eight hours. He was actually active for eleven hours. After this incident, the clinical findings were again consistently negative, and the patient was discharged six months after his admission to the sanatorium.

After his discharge, the patient returned to regular high school instruction for four hours a day. Additional factors which tended to work against this normally harmless activity were the hours that the patient spent traveling to and from school, his use of the stairs instead of the elevator at school, and the usual amount of recreational activity expected of an adolescent. He did not return for a check-up until three months later when a new spread was discovered

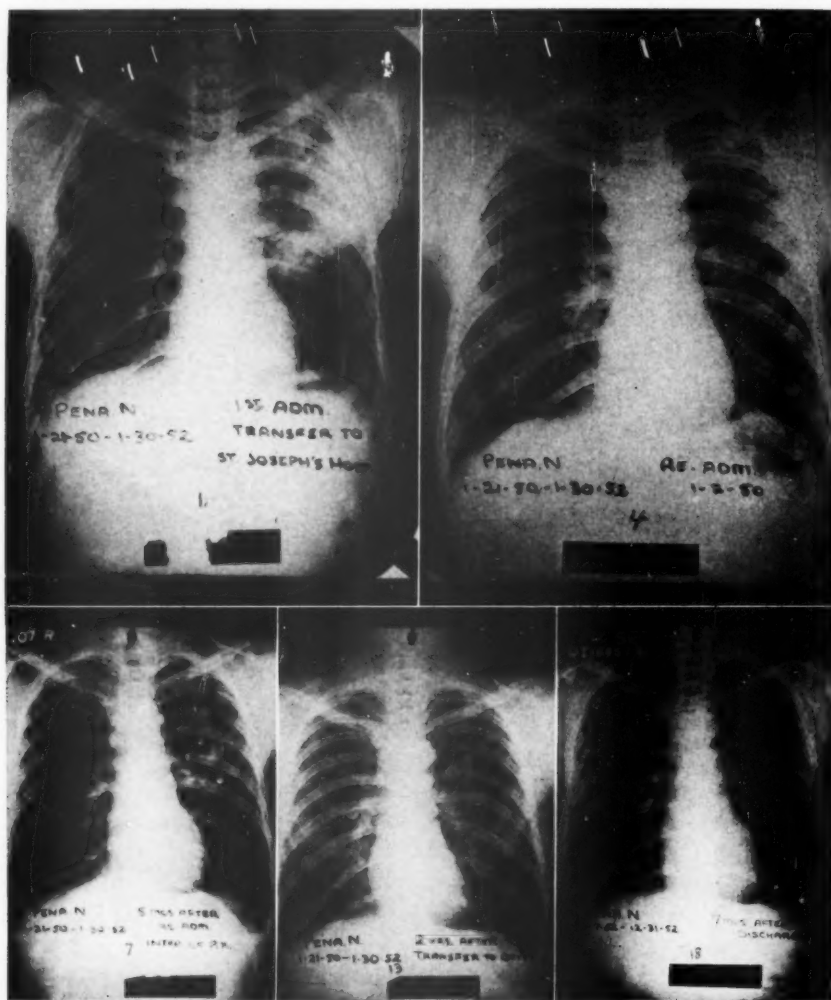


Fig. 2.

on x-ray.

**Second Case: N. P.** — age 26 — male — unskilled worker. First admission: June 26, 1949; Readmitted: January 20, 1950. This patient was first admitted with a complaint of fever cough and weight loss for seven months prior to admission. At this time, his x-rays showed homogeneous density on the left and a small soft infiltration on the right apex (fig. 2). Sputum was positive on smear. After a short stay in Bellevue Hospital, he was transferred to the St. Vincent's Hospital where he was treated with strict bedrest and undisclosed type of drug therapy for six weeks. The lesion on the left lung cleared, the clinical symptoms subsided, and laboratory findings became negative. He stayed at St. Vincent's Hospital for five months when he left against medical advice on January 18, 1950. On January 21, 1950, three days later, he came to Bellevue Hospital for readmission. On February 8, 1950, patient was started on p-aminosalicylic acid, four grams three times daily. On April 26, 1950, patient had an appendectomy. On April 28, 1950, the patient started on streptomycin, one gram daily with p-aminosalicylic acid for forty-two days. On May 24, 1950, a left therapeutic pneumothorax was introduced. On June 10, 1950, streptomycin was discontinued, and the patient was continued on p-aminosalicylic acid alone. On October 1, 1951, because of x-ray stabilization and negative laboratory findings, the patient started in the textile workshop on tailoring for one hour daily. This was gradually increased every month until he reached four hours activity, when he was transferred to the sanatorium. The patient was maintained on pneumothorax, and his stay at the sanatorium was uneventful. The lesion on the right apex seemed to be stable on x-ray examination. Because of negative findings, patient was started on two hours daily activity and training in tailoring. His activity was gradually increased by one hour each month and finally attained eight hours daily. He was discharged seven months after admission. The patient was seen regularly in the out-patient department and was referred to the Division of Vocational Rehabilitation to continue his program in a trade school starting with four hours daily. The patient reached the maximum of eight hours in December, 1952, where he was employed. He continued to work seven hours daily until the following April, when a sputum culture was returned as positive. The patient was again admitted to the hospital, and investigation showed that he had not followed the prescribed amount of activity. After his discharge, he went to a trade school in the morning for four hours, then he worked for five hours in the afternoon at a part-time job, and in the evening, he attended high school. All told, he had twelve hours of activity which was more than his physical condition permitted.

### Conclusion

The complexity of the tuberculous patient's needs calls for the services of a variety of specialists, representing each phase of the rehabilitation program. Because of the inclusion on the rehabilitation "team" of specialists from so many different fields, a careful coordination and integration of their activities is required in order to arrive at a rehabilitation evaluation; the prescription of a treatment plan; and the actual administration of the varied services to the end that the maximum assistance is rendered the patient in making the required readjustments in his life pattern. The appreciation by each specialist of the place and importance of the work of the others, and their cooperation in forming a coordinated and cohesive working unit,

has come to be called teamwork. Such a working relationship, although it is absolutely necessary to success, is not easily established. One cannot always obtain personnel with the requisite amount and quality of professional training and emotional maturity; but the medical director can do much to bring it about if he understands the nature and place of each of the specialized services in his program and participates actively in supplying the guidance and direction necessary to the clear interpretation and smooth operation of a rehabilitation program. In return for such efforts, he will have the reward of a more complete service for his patients, and eventually the benefit of having many of his former non-medical functions assumed by team members who have become skilled in their work and who can participate in active teamwork with each other.

The importance to the program of a qualified medical director cannot be overemphasized since he is the "captain" of the rehabilitation team. In spite of the fact that as the patient improves physically his treatment becomes less medical and consists more and more of vocational guidance and counseling, health education, and physical reconditioning—activities that are carried on by personnel representing the various extra-medical services—the management of tuberculosis remains basically a medical problem. The patient must undertake his activities progressively and under strict medical supervision.

Serial exercises relative to post-operative cases appeared in the article "Rehabilitation in Thoracic Surgery" by Albert Haas, M.D.; Howard A. Rusk, M.D., and Walter Goodman, R.P.T., which was published in the September, 1952, issue of *The Journal of Thoracic Surgery*.

This information was also included in a pamphlet, given to the patient, entitled "After Discharge — For Home Care."

### Discussion

Dr. Keith C. Keeler (Cleveland, Ohio): Presentation of clinical material with rational interpretation is met with difficulty because of the many unknown and unseen factors. Dr. Haas has a wealth of preliminary data which should add further to our knowledge with re-

spect to physical activity in the presence of disease. In tuberculosis, secondary dissemination of the lesion appears to be our only real measure of disease progression.

A specific lesion such as tuberculosis may be appraised from the local effects of activity as well as from the general systemic and sociologic consequences. First, one considers the pathogenesis of the early exudative lesion in the adult, which generally develops in the relatively unaerated, upper lobes of the lung where blood flow is likewise diminished. It would appear that some early lesions are benefited by physical activity which maintains or improves circulation to the upper lobes and which may be correlated with the maximum breathing capacity in liters per minute. Again, this early, "soft" lesion may not be affected by the mechanical contraction and expansion of the alveolar walls with each breath.

By contrast, the chronic, caseating, liquefying lesion may be considered a contraindication to physical activity because bronchogenic dissemination of the bacilli results from rupture of the inelastic, fibrotic mass. These lesions respond only to complete rest through collapse of the lung locally; in other words, movement of the alveoli around a caseating lesion probably contributes to secondary spread of the disease.

It would be interesting for Dr. Haas to carry on his study to the extent of comparing early and late single lesions. Yardsticks might be maximum breathing capacity, vital capacity, cardiac index; or indeed, the determining of aeration of an affected upper lobe through the bronchoscope. Is it not possible to learn more precisely of the effects of physical activity on the local lesion? Is bedrest the answer in early tubercular, pulmonary lesions?

### 32nd Annual Session

#### SCIENTIFIC EXHIBIT SPACE

Requests for applications for scientific exhibit space in connection with the 32nd Annual Session to be held at Hotel Statler, Washington, D. C., September 6-11, 1954, are being received. Address all communications to the American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Ave., Chicago 2, Ill.



# An Evaluation of Conservative Treatment for Patients with Cervical Disk Syndrome

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and

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Each year many patients having a syndrome suggestive of lateral protrusion of a cervical intervertebral disk are referred to the Section of Physical Medicine and Rehabilitation for a trial period of conservative treatment. In an effort to evaluate the effectiveness of conservative management by means of an ambulatory program of physical therapy, including cervical traction, a follow-up study was done on 61 patients who were suspected of having protrusion of a cervical disk.

In the past five years, a number of articles on the treatment of protruded cervical intervertebral disks have emphasized neurosurgical methods<sup>1-10</sup>. However, many of the authors have indicated that the majority of patients having symptoms referable to cervical disk will improve under conservative treatment, thereby eliminating the necessity of surgical treatment. In 1944, Spurling and Scoville<sup>3</sup> stated that a conservative program consisting of absolute rest in bed for three or four days with five to ten pounds of cervical traction relieved much of the pain and stiffness and that the patients could then be ambulatory while wearing a cervical collar. Josey,<sup>14</sup> in 1951, stated that the milder cases of cervical disk involvement received satisfactory relief following employment of head traction or use of a cervical collar. It was stated that immobilization of the head and stretching of the neck were the primary aims in the conservative program. In 1951, Naylor<sup>15</sup> made the first statistical report on a series of 106 patients having cervical disk syndrome who were treated conservatively. Only four required surgical treatment. The conservative treatment included 7 pounds of cervical traction in bed for ten to

fourteen days, use of a cervical collar, plaster cast or physical therapy. More recently Spurling and Segerberg<sup>16</sup>, in 1953, reported on 110 patients in whom "an unequivocal clinical diagnosis of root compression in the lower cervical region was made." Thirty-three patients (30 per cent) required surgical treatment while seventy-seven patients (70 per cent) responded to conservative treatment. The conservative treatment for these patients consisted of cervical traction for seven to ten days, complete rest in bed, and the administration of mephenesin in doses of 1 gm. every six hours during the period of traction. Six to twelve pounds of traction were used with a schedule of two hours of uninterrupted traction followed by one hour of rest. Traction was omitted during the eight hours of sleep. Since adequate descriptions of the pathologic anatomy of cervical disk protrusion with analysis of levels of involvement and associated localizing signs have already appeared in the literature, they will not be repeated here.<sup>3,5,6,9,10,22</sup>

A typical history suggestive of protrusion of a cervical disk includes pain in the lower part of the neck or midscapular region extending into the shoulder and arm and occasionally to the anterior aspect of the chest, thus a mistaken diagnosis of coronary artery disease may be made. Pain is often localized deep in the upper arm and may extend into the forearm and hand. Paresthesias described as numbness and tingling fre-

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quently occur in the forearm, extending into the fingers, especially the index finger. The pain may be aggravated by straining, coughing, sneezing or by movements of the head including flexion, extension, lateral bending or rotation. Often the pain is worse on lying down; however, occasionally it is worse on ambulation and the jarring associated with walking or riding. Examination usually reveals guarded movements of the cervical portion of the spinal column with the head and neck held in a moderately flexed position and with loss of the usual cervical lordosis. There is frequently moderately deep tenderness in the upper portion of the trapezius muscle and other cervical muscles on the side of involvement, associated with a feeling of induration or spasm on deep palpation. Mild degrees of motor weakness may be noted in muscles supplied by the sixth or seventh cervical nerves. Deep tendon reflexes of the biceps or triceps may be diminished depending on the root involved. Occasionally on examination, manual cervical traction will provide temporary relief of the radicular pain or modify the paresthesias. Roentgenograms usually show narrowing of the fifth or sixth cervical interspace with or without hypertrophic changes and absence of the normal cervical lordosis.

#### Selection of Patients

This group of sixty-one patients included forty-two men and nineteen women seen between 1947 and 1950. The age distribution is shown in table 1. All of the sixty-one patients gave a history of radicular type of pain of four days' to several years' duration. In addition to the pain, 79 per cent had paresthesias, 54 per cent had motor weakness and 50 per cent had diminished reflexes. All patients had undergone a neurologic examination, and a diagnosis of probable

protruded cervical disk had been made by a neurologist. The majority of the patients were also seen by a neurosurgeon before they were referred for conservative treatment. The patients in our series were not submitted to ethyl iodophenylundecylate (Pantopaque) myelography unless immediate surgical treatment was definitely contemplated. The majority were less than 50 years of age and showed no roentgenographic evidence of significant hypertrophic arthritis.

#### Conservative Treatment

The treatment given in the Section of Physical Medicine and Rehabilitation included applications of heat and massage to the cervical, upper dorsal and shoulder areas on the involved side, as well as cervical traction. By preliminary application of heat and massage, the cervical pain, muscular spasm and muscular tenderness can often be modified so that the patient tolerates the cervical traction better than if it were used alone. Short-wave diathermy utilizing an induction cable or radiant heat from a 250 watt reflector heat lamp was applied for thirty minutes. This was followed by deep stroking and kneading massage to the muscles of the neck, shoulder and upper arm.

Cervical traction was given by a physician using an overhead Sayre head sling with a spring scale so mounted, to indicate directly the poundage of vertical traction. The traction was applied while the patient was seated in a relaxed position with his hands at his sides, his feet flat on the floor and with a 1/2 inch felt pad placed between the jaws as described by Hanflig<sup>24</sup>. The traction was applied in varying amounts from 30 to 100 pounds depending on the patient's tolerance and his ability to maintain relaxation of the cervical musculature during the application of the traction. The average pull was 60 pounds and was applied from one to three minutes twice daily. While the traction was being applied, the patient was instructed to shrug his shoulders and then relax. The physician then assisted the patient to rotate his head slowly through the maximal

TABLE 1: — Age Distribution

Age, years*	Patients	Per cent
20-30	1	1.6
30-40	16	26.2
40-50	29	47.6
50-60	12	19.7
60-70	3	4.9
Total	61	100.0

\*Average age 45 years.

range of motion two or three times. In some instances, the rotation was done entirely by the patient with the physician stabilizing the patient's shoulders. If it appeared that some improvement were being made with the conservative treatment, the patient was instructed in a method of using a simple felt head sling at home and in the application of vertical traction by suspension while standing, utilizing slight bending of the knees.

The initial number of treatments varied from one to forty-two with an average of eight treatments per patient. Fifty-one of the sixty-one patients were instructed in the use of a radiant heat lamp and traction at home. Thirty-five (57.4 per cent) of these continued to use the cervical traction at home.

### Results

Evaluation of the symptoms at the end of the initial period of treatment indicated that forty-one (67.2 per cent) had definite improvement and twenty (32.8 per cent) had no change to only slight improvement (table 2). The immediate effect of the vertical cervical traction was often very dramatic. In several cases, there was complete and lasting relief of pain during and following the first application of cervical traction. Usually during the first few periods of traction the pain and paresthesias were definitely relieved. However, the pain might recur as the traction was released or within a period of several hours. With successive applications of the traction, the period of relief of symptoms generally became progressively longer.

In the majority of patients there was definite modification of the pain and paresthesias within the first four or five days and the traction was then continued either by the patient at his home or at the department of physical medicine and rehabilitation as long as improvement continued.

The later results at the end of the follow-up period, which varied from six months to five years (average twenty-three months), showed that forty-seven of the sixty-one (77.1 per cent) had definite improvement, two (3.2 per cent) had slight improvement and twelve (19.7 per cent) had undergone surgical treatment. None of the patients who had complete relief or marked improvement during the initial period of treatment ever required surgical treatment although three or four have had recurrence of symptoms that were again relieved by conservative treatment. Nine of the twelve patients who had surgical treatment underwent operation within one month of starting conservative treatment, two within six months and one two years later. The age distribution of the group who had surgical treatment corresponded with that of the group who had complete relief. Only two patients had aggravation of symptoms during traction and they were both in the group that subsequently had early surgical treatment.

### Comment

The findings in this follow-up study in general agree with those of Naylor<sup>10</sup>, of Spurling and Segerberg<sup>11</sup> and others,

TABLE 2: — Initial and Later Results of Conservative Treatment of Cervical Disk Syndrome

	INITIAL RESULT		LATER RESULT					
	Patients	Per cent	Complete relief	Marked improvement	Fair improvement	Slight improvement	No change	Surgical treatment
Complete relief	10	16.4	4	4	2	0	0	0
Marked improvement	15	24.6	4	10	1	0	0	0
Fair improvement	16	26.2	5	3	6	1	0	1*
Slight improvement	8	13.1	2	2	1	0	0	3
No change	12	19.7	1	0	2	0	1	8
Total	61	100.0	16	19	12	1	1	12**
Per cent		100.0	26.2	31.2	19.7	1.6	1.6	19.7

\*Surgical treatment two years after initial treatment.

\*\*Nine had surgical treatment within one month of starting conservative treatment, and two within six months.

namely that a large percentage of patients who have cervical disk syndrome will respond satisfactorily to conservative treatment. It is our opinion that in most cases this improvement is due primarily to traction, although ancillary procedures undoubtedly are of value.

There are a number of methods of applying cervical traction besides the one used on this group of patients. It is possible that horizontal traction using fairly heavy weights, that is, 30 pounds or more, for short periods would be effective. However, it is our impression that intensive vertical traction for short periods of time is more effective than horizontal traction with less poundage. None of the patients was fitted with a cervical collar or brace during the period of conservative treatment. None of the patients who used the traction at home reported any untoward effect and many of them continued to use the traction intermittently for many months following dismissal. Because of the fact that not all of these patients were seen for neurologic examination in the follow-up period, it is not possible to state how many had objective improvement in the original findings.

### Conclusions

Sixty-one patients with a syndrome of protruded cervical intervertebral disk were evaluated after an initial short period of conservative treatment and again after a period of six months to five years. The conservative treatment included heat, massage and vertical cervical traction.

Immediate results often included dramatic relief of pain. Forty-one (67.2 per cent) of the patients had definite improvement during the initial period of treatment. Six months to five years after the initial period of treatment, 77.1 per cent of the patients had definite improvement, 3.2 per cent showed no change to slight improvement, and 19.7 per cent of the patients had required surgical treatment.

3 An ambulatory program of physical therapy including vertical cervical traction provides satisfactory treatment for

the majority of patients suspected of having lateral protrusion of a cervical intervertebral disk.

### References

1. Stookey, Byron: Compression of the Spinal Cord Due to Ventral Extradural Cervical Chondromas; Diagnosis and Surgical Treatment. *Arch. Neurol. & Psychiat.* 20:275 (Aug.) 1928.
2. Semmes, R. E., and Murphey, Francis: The Syndrome of Unilateral Rupture of the Sixth Cervical Disk; With Compression of the Seventh Cervical Nerve Root; a Report of Four Cases With Symptoms Simulating Coronary Disease. *J.A.M.A.* 121:1209 (Apr. 10) 1943.
3. Spurling, R. G., and Scoville, W. B.: Lateral Rupture of the Cervical Intervertebral Discs; a Common Cause of Shoulder and Arm Pain. *Surg., Gynec. & Obst.* 78:350 (Apr.) 1944.
4. Michelsen, J. J., and Mixter, W. J.: Pain and Disability of Shoulder and Arm Due to Herniation of the Nucleus Pulposus of Cervical Intervertebral Discs. *New England J. Med.* 231:279 (Aug. 24) 1944.
5. Corbin, K. B.: The Anatomic Basis for the More Common Types of Mechanical Brachial Neuritis. In *The American Academy of Orthopaedic Surgeons: Regional Orthopaedic Surgery and Fundamental Orthopaedic Problems; Number II.* Ann Arbor, J. W. Edwards, 1948, pp. 57-67.
6. Kristoff, F. V., and Odom, G. L.: Ruptured Intervertebral Disk in the Cervical Region; a Report of Twenty Cases. *Arch. Surg.* 54:287 (Mar.) 1947.
7. Thomson, J. L.: The Diagnosis and Treatment of Ruptured Cervical Disk. *Virginia M. Monthly* 77:537 (Oct.) 1950.
8. Lemmon, C. J., Jr.: Lateral Herniations of Cervical Discs. *J. South Carolina M. A.* 47:122 (Apr.) 1951.
9. Frykholm, Ragnar: Cervical Nerve Root Compression Resulting From Disc Degeneration and Root-sleeve Fibrosis; a Clinical Investigation. *Acta chir. Scandinav. Suppl.* 160:1, 1951.
10. Love, J. G.: Intractable Pain in the Neck and Upper Extremities With Particular Reference to Protrusion of Cervical Discs. *North Carolina M. J.* 12:274 (July) 1951.
11. Walker, E.; Moore, W. W., and Simpson, J. R.: Diagnosis and Surgical Treatment of Cervical Lesions of Intervertebral Disc. *J. Internat. Coll. Surgeons* 15:411 (Apr.) 1951.
12. Shenkin, H. A., and Groff, R. A.: Herniations of the Cervical Intervertebral Disc and Scalenotomy. *Surgery* 29:540 (Apr.) 1951.

13. Moreton, R. D., and Ehni, George: Radiographic Findings in Protruded Cervical Discs. *South. M. J.* 44:582 (July) 1951.
14. Josey, A. I.: The Importance of the Cervical Spine to the Internist. *Ann. Int. Med.* 35:375 (Aug.) 1951.
15. Naylor, Arthur: Brachial Neuritis, With Particular Reference to Lesions of the Cervical Intervertebral Discs. *Ann. Roy. Coll. Surgeons.* 9:158, 1951.
16. Spurling, R. G., and Segerberg, L. H.: Lateral Intervertebral Disk Lesions in the Lower Cervical Region. *J.A.M.A.* 151:354 (Jan. 31) 1953.
17. Turner, E. L., and Oppenheimer, Albert: A Common Lesion of the Cervical Spine Responsible for Segmental Neuritis. *Ann. Int. Med.* 10:427 (Oct.) 1936.
18. Michelsen, J. J., and Mixter, W. J.: Diagnostic Aspects of Unilateral Ruptured Cervical Disk. *Arch. Neurol. & Psychiat.* 56:721 (Dec.) 1946.
19. Brain, W. R.: Discussion on Rupture of the Intervertebral Disc in the Cervical Region. *Proc. Roy. Soc. Med.* 41:509 (Aug.) 1948.
20. Bull, J. W. D.: Discussion on Rupture of the Intervertebral Disc in the Cervical Region. *Proc. Roy. Soc. Med.* 41:513 (Aug.) 1948.
21. Raney, A. A., and Raney, R. B.: Headache: A Common Symptom of Cervical Disk Lesions; Report of Cases. *Arch. Neurol. & Psychiat.* 59:603 (May) 1948.
22. Jefferson, Michael: Laterally Placed Cervical Discs; Review of Twelve Cases. *Lancet* 1:129 (Jan. 20) 1951.
23. Weinberg, H. B.; Hyndman, O. R., and Van Allen, M. W.: Herniated Cervical Intervertebral Disk Simulating Angina Pectoris. *Postgrad. Med.* 10:247 (Sept.) 1951.
24. Hanflig, S. S.: Pain in the Shoulder Girdle, Arm and Precordium Due to Foraminal Compression of Nerve Roots. *Arch. Surg.* 46:652 (May) 1943.

### Discussion

Dr. George D. Wilson (Asheville, N.C.): Doctors Martin and Corbin are to be commended for asserting that many so-called cervical discs can be treated conservatively without major surgical interference.

Any discussion of intervertebral discs raises the question of correct diagnosis. Today in our field of physical medicine we will be the "end of the line" or "in-between" physician to treat patients tentatively or positively diagnosed as having a disc syndrome. Dr. H. H. Young, in the March 29, 1952, issue of *J.A.M.A.*,

mentioned conditions that simulated disc syndromes of the lower spine that were not true disc cases. Doctors A.S.B. Bankart, W. S. C. Copeman, W. L. Ackerman and R. Hertz in 1946 and 1947 asserted themselves in stating many so-called disc syndromes were due to other causes such as spinal arthritis, neoplasms, tuberculosis of bone, neuritis and herniated fat pads. The cervical disc should be considered a somewhat different problem, as indicated by Dr. L. A. Senseman in a medical forum published in the January 1953 issue of *Modern Medicine*. He states that conservative treatment should be attempted first before surgery.

This brings us to the question of the definition of conservative treatment. Doctors Martin and Corbin point out the use of conservative treatment on sixty-one patients over a three-year period in which the majority of patients were under 50 years of age. They evaluated these same patients within a period of six months to five years, and report relief of pain in 77.1 per cent of the group. Twenty per cent eventually had surgery and three per cent showed no change.

The authors describe a conservative treatment consisting of heat, massage and vertical cervical traction.

It is well to point out that a physician administered the cervical traction in this series. To sell or prescribe a Sayre head sling or a metal pulley apparatus to put over a door frame in the home and tell the patient to go home and use it results in failure and the search for another doctor or medical center.

The time element of application is important and is usually varied. It is noted the follow-up period reported by the authors ranged from six months to five years with the average follow-up period of twenty-three months. In private practice, the referring physician or patient will not tolerate a period longer than two to four weeks for decision relative to recovery or surgery. This puts us, in physical medicine, on a veritable spot either to produce results with conservative treatment or to let the patient

decide for you. When one is given three to four weeks to obtain relief by conservative methods, cervical traction cannot be relied upon alone. The discussor learned that daily treatment employing deep heat produced by microtherm, massage, and exercise assisted both the patient and physician in making the final decision relative to surgery.

The authors state their impression is that vertical cervical traction is better than horizontal traction. Warnings are reported in the literature of disastrous results from too long a period with horizontal traction in patients over 50 years of age.

It is well to note Doctors Martin and Corbin treated their series of patients on an ambulatory basis and it is the discussor's belief that this is a big factor in their high percentage of recoveries: lower percentages are reported by those using horizontal traction and hospitalization with immobilization for one to two week periods.

Many more cases of cervical spine injuries will be seen from the bumper-to-bumper automobile accidents that occur as cars crash into each other in chain-

reaction accidents. The discussor recently attended such a case in which a young lady had the cervical spine, cord and nerve roots so injured that for the first twenty-four hours the condition appeared as a quadriplegia. The myelogram was negative along with spinal puncture. The third day, recovery occurred in the lower part of the body leaving the upper extremities partially paralyzed. Complete recovery occurred within ten days by using deep heat with microtherm, massage and exercise to the neck and upper extremities. Roentgenographic studies were essential to rule out serious bone damage before progressive conservative treatment was instituted. It was observed that drugs did not relieve the nerve pain but that physical procedures produced relief. As Doctors Martin and Corbin pointed out, the use of deep heat before, during and after cervical vertical traction, is a very important step in the conservative management of simulated or true cervical disc syndromes.

It is gratifying to know that so many of these painful neck and shoulder cases can be helped by conservative methods of treatment as outlined by the authors.

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### **IMPORTANT ANNOUNCEMENT**

#### **AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION**

The next examinations for the American Board of Physical Medicine and Rehabilitation will be held in Washington, D.C., September 5 and 6, 1954. The final date for filing applications in March 31, 1954. Applications for eligibility to the examinations should be mailed to the Secretary, Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago 2, Ill.

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# Evaluation of Professional Competence in Physical Medicine and Rehabilitation

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Evaluation of occupational competence is undertaken in a surprisingly large variety of fields and concerns all of us to some extent. It is perhaps symptomatic of the sort of job specialization we value in our culture; everyone wants to be as certain as possible that the services he needs are performed by workers who are competent, and every worker wants the satisfaction that approval of his competence provides. Parenthetically, it is of interest to the social scientist that these problems are found almost exclusively among the personal and technical service occupations—not in those associated with the production or distribution of goods or the utilization of natural resources, nor those related to business and management functions, nor in the esthetic fields.

Our needs to be assured of receiving adequate service on the one hand, or proper recognition on the other, have led to the development of various certification procedures, civil service and proficiency examinations<sup>1</sup>, specialty boards, and licensing in many fields. It has led also to the development of trade tests, codes of ethics, merit evaluations, and, of course, many symbols which workers may use to attest achievement in their fields of work. The master plumber, the Chartered Life Underwriter, the actuary, the licensed beauty operator, the Ph.D. archaeologist—all these, and workers in many other fields, have been approved as competent by virtue of having completed certain specified training and having passed some kind of examination.

The operations involved in evaluating competence are simply stated. Procedures merely need to be developed which will set apart a particular group from all other people. In a real sense the operations are very much like those used in

conducting a scientific experiment; we are interested in one variable (competence in the field) with all other variables held constant. We are, so to speak, disinterested observers looking for facts which will enable us to make tenable hypotheses—hypotheses in this instance about people and their abilities.

As we work out procedures which help us set one group of people apart from all others we learn early that people do not come in neat good or bad, right or wrong, competent or incompetent packages. If they did, the problems associated with evaluation of competence would indeed be simple. But competence, like most other psychological phenomena, is a matter of degree; it is not an all-or-none proposition. The purpose of this paper is to discuss some of the problems which the American Board of Physical Medicine and Rehabilitation has encountered and to describe briefly some of the approaches which have been made, and which are being made, to solve them.

One of our problems, and at first glance this comes as a distinct shock to most of us, is that we cannot measure degrees of competence directly. Competence is always inferred. And since the inferences always are made by fallible people making judgments on the basis of data which are neither completely verifiable nor completely accurate, errors will occur. Any examination procedure—in fact, all procedures of whatever sort used to evaluate competence—must be designed to minimize the effects of errors of fact and errors of judgment. This means, of course, that evaluating levels of professional competence in any field

<sup>1</sup>Read at the Annual Session of the American Society of Physical Medicine and Rehabilitation, Chicago, August 31, 1953.  
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is a grave responsibility, for basically there are two types of serious errors which can be committed. The first type of error is that of approving as competent at a certain level someone who is not in fact that competent, or someone about whom considerable question exists. The second type is the converse of the first—that of labeling as incompetent at a certain level someone who, in actual practice, is competent. Although it is of course debatable which is the more serious error, most of us would agree that the first type of error, if it occurred too often, would make certification of competence on any level meaningless.

Even among the relatively homogeneous group of physicians who practice in the field of physical medicine and rehabilitation there is great variety of background, and large variability in type and recency of training, types of patients seen, responsibility for training and supervising others, adequacy of facilities, cooperation of medical colleagues, and many other important variables which may affect competence. However, since inferences about competence must be made—they cannot be avoided if the American Board of Physical Medicine and Rehabilitation is to meet its responsibilities—certain basic assumptions are also made. That these assumptions seem reasonable and are more or less agreed upon does not alter the fact they are assumptions.

The assumptions being made may be described somewhat as follows: Applicants for diplomate status who are judged to have received adequate amounts of appropriate training and to have had certain kinds and amounts of experience, are judged to be competent at the highest (diplomate) level if they can respond adequately to a variety of examinations which are somewhat unrelated to each other but which are individually related to knowledge of the field. Now, it is recognized that knowledge of the field of physical medicine and rehabilitation is no substitute for competence in the field, although the assumption that knowledge is related directly to competence is a tenable and useful one. Since

levels of competence must in any event be inferred, it is probably more defensible to make the needed inferences from tests of knowledge than from other, at present unknown, variables.

Since 1947, this specialty Board has conducted yearly examinations of candidates. The success which had attended the use of objective examinations for physical therapists prompted the Board to consider initially, as one of the sections of the written examination for their own candidates, an objective examination covering the professional field. In addition to the objective, short-answer type of examination, the traditional essay or long answer type of test and oral examinations were planned. It was felt that each candidate would thus be given opportunity to demonstrate his knowledge in three types of situations, and that this sort of procedure would minimize the likelihood of occurrence of either type of error discussed heretofore.

For each of the six subsequent examination sessions which have been held since 1947, improvements have been made in examination and evaluation procedures, although the three general types of examinations described have been retained. As in Physical Medicine and Rehabilitation itself, so here, too, research has led to progress. Research has led the Board to criticize and improve its own procedures and instruments—to sharpen its tools, so to speak, or from another point of view, to make better diagnoses.

Any examination procedures are only as good as the reliabilities of the instruments being used. Thorndike<sup>4</sup> provides a succinct description of the problem. He says, "A measurement procedure is reliable to the extent that repeated measurement gives consistent results for the individual—consistent in that his score remains substantially the same when the measure is repeated, or that his standing in the group shows little change. . . . Reliability or consistency in a measurement procedure is a matter of degree and not an all-or-none matter. Whenever we measure anything, whether in the physical, the biological, or the social sciences,



that measurement contains a certain amount of chance error. The amount of chance error may be large or small, but it always is present to some extent. If the chance errors are small in size, relative to the variation from person to person, the reliability or consistency of the measure is high."

Now typically chance errors of measurement exert greatest effects when the group being examined is homogeneous, and least when the group exhibits a wide range of talent. But, typically also, we are seldom interested in testing a heterogeneous group; usually the group being examined already has been highly selected. For instance, it would be relatively easy to develop a mathematics test which would show high reliability when we are testing a large group of people ranging from illiterates to Bertrand Russell. This truly is a heterogeneous group, but also one in which nobody is particularly interested. Developing a mathematics test, however, which differentiates reliably among all professors of mathematics in American universities would be a much more difficult task, no matter how interesting and useful it might be to obtain the information.

The Board has faced these facts in attempting to differentiate among the candidates, all of whom have been selected carefully beforehand, all of whom are in the upper ranges of intelligence and education, and all of whom have had experience and special training sufficiently comparable to qualify for examination. Here, then, is a highly homogeneous group of people who must be examined reliably.

Reliability may be measured in several ways, each appropriate when the basic data meet certain sets of assumptions. Typically, reliability is reported by using some sort of correlation coefficient, with a maximum theoretical value of 1.00 (this would be for a test with no chance errors, and, incidentally, no such test has ever existed) and a minimum value of 0.00. When appropriate statistics are used to estimate the reliabilities of the examinations currently being used by the American Board of Physical Medicine

and Rehabilitation we find the reliability coefficient of the objective examination to be .94<sup>2</sup>, that of the essay examination .60<sup>3</sup>, and that of the oral examination .76<sup>3</sup>.

The objective examination is about as reliable as it can be made unless it is lengthened much more than would be desirable. We are trying to improve the essay and the oral examinations, and believe we have already isolated at least one variable, or source of error, which reduces these latter reliabilities below those we should like to have. It is good to know that the current reliabilities are greater than those found for earlier essay and oral examinations of the Board and that they compare very favorably with reliabilities which have been reported in the literature for similar sorts of examinations used in other situations.

The desirability of developing examination procedures which are not only reliable but which also will give each candidate adequate opportunity to demonstrate his knowledge in three types of situations was mentioned earlier. Now it is obvious that the kinds of responses people make in the stressful, anxiety-producing oral examination are vastly different from those they exhibit when merely making pencil marks on the answer sheet to an objective test, and that each of these kinds of responses is different from the sorts people make when they are told to write out detailed answers to specified questions in their own words. The responses candidates make differ because the examination conditions themselves differ. Yet, too, it is obvious that the responses in all three types of examination situations must have something in common—they must relate to knowledge of the specialty field in which the candidates are being examined.

Here, again, correlation technics are useful as means of estimating the extent to which these examination situations are different. If we correlate scores or ratings earned by the candidates in one examination situation with those earned by the same group in each of the other situations, and if the correlations are

very high, the situations must have much in common. If the correlations are zero, on the other hand, they have nothing in common. The correlation is a means, then, of identifying the common elements in these three situations. The correlation<sup>1</sup> between scores on the oral examination and on the essay examination is .50, that between the objective examination and the oral examination is .47, and that between the essay and the objective examination is .49.

What do these correlations tell us? First, they indicate quantitatively that these three different examination situations are not substitutes, one for another. Second, each procedure makes some unique contribution to the assessment of the candidate's knowledge of his specialty field. Third, and therefore, it follows that these procedures permit a candidate who is anxious in an oral examination, for instance, to show his knowledge of the field in other situations in which the socially inhibitory character of the oral examination is not present; likewise, they permit a candidate who does not express himself too well in writing nevertheless to show that he does know the field by responding well on other types of examinations sampling his knowledge.

In essence, then, since the examinations are by and large reliable, and since they do not correlate highly with each other, and since they are made up of topics and items and questions which are relevant to the field, we may say with considerable confidence that each examinee is given adequate opportunity to demonstrate his knowledge. And from his knowledge, of course, there may be inferred a measure of his competence in his field.

Once all scores and ratings are available (and it must be emphasized that every attempt is made to rule out bias, and to minimize chances of error by using quantitative means for evaluating

performance) all data are pooled in an attempt to avoid either of the types of error described. After all, even though the candidates have been previously selected, each must be assigned to one of two groups—pass or fail. There is no middle ground nor would one be desirable. Certainly candidates who do very well on all three types of examinations have given the Board enough data about their knowledge to permit valid judgments of competence at the highest level. Certainly also, those who consistently make very low ratings have given little evidence, despite the Board's providing three different means for demonstrating their knowledge, to warrant their being awarded the certificate of the Board.

The "in between" cases here, as in any field, are the difficult ones about whom to make valid judgments. The Board feels, I am sure, that one guarantee of objectivity is the fact they are disinterested in candidates *as* candidates—disinterested again in the scientific sense—and that they and their consultant are motivated only by the desire to be as certain as possible that all who are granted the certificate of the American Board of Physical Medicine and Rehabilitation will be professionally competent to the extent that competence can be measured.

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### References

1. Adkins, D. C., et al: *Construction and Analysis of Achievement Tests*, Washington, D.C., Government Printing Office, 1947.
2. Ebel, Robert L.: *Estimation of the Reliability of Ratings*. *Psychometrika* 16:407, 1951.
3. Gulliksen, Harold: *Theory of Mental Tests*, New York, John Wiley & Sons, Inc., 1950.
4. Thorndike, Robert L.: *Personnel Selection*, New York, John Wiley & Sons, Inc., 1949.

# The Whirlpool Bath and Cross-Infections

CARL F. PAGE  
GALVESTON, TEXAS

The question has been raised by doctors and physical therapists, including our own staff members, relative to cross-infection from patient to patient resulting from immersion of burn and other patients in the large Hubbard Subaqua therapy tank. A survey of the *Archives of Physical Medicine* from 1945 through 1952 reveals no research on this subject, and it was therefore decided to set up experiments which would yield information either to confirm or deny suspicions of cross-infection using this method of hydrotherapy.

The whirlpool bath is one of the most powerful of the physical measures in hydrology for those lesions that are accessible.<sup>1</sup> It is useful in the treatment of peripheral vascular disease<sup>2</sup>, gravitational edema, muscular weakness, leg and decubitus ulcers, joint injury and disease, and in convalescence from severe burns. On our service we are concerned chiefly with burn and ulcer patients. We feel that local heat and softening of tissues result from total immersion of patients in the Hubbard tank<sup>3</sup>, but we have been disturbed for fear we are causing cross-infection at the same time.

## Procedure

In our Physical Therapy Department, a figure "8"-shaped Hubbard-Currence tank with Snow modification is used. The tank has a maximum capacity of 425 gallons of water; it is filled to the 390 gallon level, with the temperature maintained at 96.0 to 98.6 F. According to our usual procedure, to this amount of water was added 3 grams of the detergent Dreft (product of Proctor and Gamble). Thorough mixing was accomplished by electrical agitators, with the formation of a moderate amount of suds and at this point a 100 ml. sample of water was taken in a sterile bottle.

A patient was then immersed in the bath for a routine period of 20 minutes. After the patient was removed, the water was mixed well and another 100 ml. sample was taken, thus affording a "before" and "after" sample. After the treatment of each patient the water was drained and the tub scrubbed with another solution of Dreft and then rinsed with clear tap water. The entire procedure was repeated until a total of 40 patients had been cared for over a period of 12 days.

Each of the water samples was examined bacteriologically in the following manner: Plate counts were made with trypticase-soy agar to determine the number of organisms per ml. of water. Simultaneously 0.5 ml. portions were pipetted to tubes containing 5 ml. of lactose phenol red broth, trypticase-soy broth (grown aerobically), and trypticase-soy broth (grown anaerobically). The plate counts were made at the end of 48 hours incubation at 37 C., and the broths were transferred at 24 and 48 hours. Each broth was streaked separately to blood agar, eosin-methylene-blue, and trypticase-soy agar. Transfers were made from here to other isolation media as necessary. The type organism present and the approximate percentage of each was determined.

## Results

The following table shows types and approximate percentage of bacteria found in samples of water taken from the whirlpool bath before and after immersion of patients for 20 minutes:

From the Bacteriology Research Laboratory, Special Surgical Unit, Plastic and Maxillo-Facial Service, University of Texas, Medical Branch, Galveston, Texas.

This work was carried out under Army Contract DA49-007-MD-447.

This study was made with the assistance and cooperation of Miss Rosemary Johnson, Physical Therapist, and Miss Ruby Decker, Technical Director of the Department of Physical Therapy, University of Texas, Medical Branch, Galveston, Texas.

Samples	Before	After
Total number of samples	40	40
% samples + for coliforms	0	45.0%
% " + for Staphylococci	0	100.0%
% " + for Pseudomonas species	0	52.5%
% " + for Alkaligenes fecalis	0	7.5%
% " + for Escherichia coli	0	14.0%
% " + for Aerobacter aerogenes	0	35.0%
% " + for B. subtilis group	0	25.0%

The only possible explanation for the absence of contaminating organisms in the first samples is the effect of Dreft. This detergent is known to have antibacterial qualities, but it is amazing that it is so effective at a concentration of only 3 gms./390 gallons of water.

It is apparent from these data that



Fig. 1 — The Hubbard-Currence Subaqua Therapy Tank filled with 390 gallons of water to which 3 grams of the detergent Dreft has been added and agitated.

Similar experiments were carried out on samples taken from the arm and leg whirlpool baths after 10 consecutive patients. The dilution of organisms was apparently so great that all samples were negative for bacteria.

### Conclusions

No organisms were found in the "before" samples of water out of 40 consecutive samples taken before immersing patients in the Hubbard tank for 20 minutes.

All 40 "after" immersion samples were positive for 3 or more different types of bacteria ranging from 10 organisms to 30,000 organisms per ml. of water.

the chances of cross-infection of patients cared for in the manner described previously are minimal indeed. We believe, therefore, that the whirlpool bath is not only a useful method of physical therapy but is safe from the standpoint of bacterial contamination.

### References

1. Pope, Curran: A New Whirlpool Bath for Institutions. *Physical Therap.* (Feb.) 1929.
2. Smith, Beverly C.: Physical Therapy of Peripheral Vascular Disease. *Arch. Phys. Therapy, X-Ray, Radium* 18:391 (July) 1937.
3. Currence, John D.: The Practical Application of Local Heat. *New York State J. Med.* 48:2044 (Sept. 15) 1948.

# EDITORIAL

ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION  
OFFICIAL JOURNAL

*American Congress of Physical Medicine and Rehabilitation*  
*American Society of Physical Medicine and Rehabilitation*



## Direct Medical Supervision of Physical Therapy

The term "direct supervision" of physical therapy is interpreted to mean that the physician responsible for the treatment has a complete understanding of all aspects and phases of the treatment; that he is acquainted with the facilities and methods used by the physical therapist, and that he has prescribed the details of the treatment to be used. Direct supervision means further that the physician is available to observe the patient and his response to the treatment as may be necessary, and to alter the prescription for treatment according to the needs of the patient.

Direct supervision requires, therefore, that the physician who is supervising the treatment have a continuing close contact with the physical therapist by whom his patients are treated. A therapist, in an office of his own, to whom patients are referred by the prescriptions of physicians would not come under the category of direct supervision. A physical therapy clinic which does not have a physician or a group of physicians available for direction of medical treatment does not come under the category of direct supervision. Arrangements should be formalized for the specific responsibility for medical supervision of each physical therapist or each physical therapy clinic. Clinics or therapists who have not formally established responsi-

bility for medical supervision cannot be said to be under "direct medical supervision."

The foregoing definition concerning the relationship of the practice of physical therapy to the field of medicine was officially adopted by the American Congress of Physical Medicine and Rehabilitation and the American Society of Physical Medicine and Rehabilitation at their meetings in Chicago, in September, 1953. This definition does not present a change of policy, but rather the formal enunciation of a policy which has been the goal of the leaders of those organizations for many years.

Since its formation in 1935, the American Registry of Physical Therapists has provided leadership in establishing a close relationship between physicians and physical therapists. It has maintained that the medical knowledge for diagnosis and prescription of treatment must be closely associated with the actual treatment in order to obtain the best results. It has understood that as the patient's condition changes, the prescription should also be changed. Unless, therefore, the doctor is available to see the patient and prescribe the necessary changes in treatment, either the patient's progress will lag for lack of adequate treatment, or the physical therapist will have to change the prescription. In

either case the lack of medical knowledge in those circumstances will be detrimental to the best interests of the patient.

It has been and will be argued that a physician may not be available when needed. Perhaps there are more cases where this is true today than there have been in times past. Many charitable organizations have established so-called "rehabilitation centers" by providing a building, equipment, business management, and physical and occupational therapists. It has been assumed by these organizations that this equipment and personnel would be adequate to rehabilitate the physically handicapped. Where medical supervision and direction has not been available throughout the entirety of the therapeutic program, this "rehabilitation" has fallen far short of its goal. This provision of space for "rehabilitation" has made acute the shortage of physicians trained in physical medicine and rehabilitation. Many more need to be trained.

It has been and will be argued that some physicians lack knowledge of the uses and methods of physical therapy and, therefore, must leave those decisions to the therapists. The corollary of this argument which should be brought into the open is that any therapist prescribing for and treating a patient on her own knowledge rather than under the guidance of a physician presumes to have the medical judgment to practice medicine independently. A simple referral for treatment by a physician is no more a prescription which ethically covers a physical therapist's assuming responsibility for treating a patient than does a referral of a patient to a pharmacist for "pain killer" legally cover the dispensing of a narcotic. The use of physical therapy is the practice of medicine. If a physician feels unqualified to prescribe physical therapy for a patient, he should refer that patient to another physician for treatment just as he would

do for any other type of specialized therapy. The physical therapist works as an agent of the physician and, therefore, ethically works only under his supervision. It is the obligation of the physician, who sends a patient for physical therapy, to determine that the orders for treatment are specific and adequate and that they are modified as frequently as the patient's progress makes necessary.

To provide adequate supervision of his patients in physical therapy, the physician needs to be readily available to the physical therapy clinic, to be in it frequently and observe the patients during treatment. In general practice in a city, one large rehabilitation center centrally located, away from doctors' offices and away from hospitals makes such supervision impossible. Of necessity such an arrangement requires a physiatrist who will spend time each day at the rehabilitation center. Yet seventy per cent of the patients seen in a doctor's office who need physical therapy do not require elaborate equipment and could be adequately treated in a physical therapy clinic located at the physician's office building or in the hospital. Here the physician is available to prescribe and supervise treatment as necessary. Other patients requiring more elaborate facilities will probably also require more time and more specialized knowledge and the physician will wish to refer them to a physiatrist.

Physical medicine is growing in two directions: there is greater use of physical therapy by physicians and surgeons in general practice, and there is more demand for physiatrists for the rehabilitation of the severely disabled. These two phases of expansion are quite compatible. In both phases healthy expansion will occur only if physical therapy is an integral part of medical practice by being under the direct supervision of a qualified doctor of medicine and surgery.

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### GOLD KEY AWARDS

Dr. Howard A. Rusk, Chairman of the Gold Key Awards Committee, has announced that the closing date for nominations for 1954 Gold Key Awards is March 15, 1954.

Congress members wishing to nominate an individual whose accomplishments in the field of Physical Medicine and Rehabilitation have been outstanding in nature and have resulted in raising the discipline of the specialty to a higher standard can forward their nominations to Dr. Rusk, Institute of Physical Medicine and Rehabilitation, 400 East 34th Street, New York 16, or to other members of the Committee:

ARTHUR C. JONES, M.D.  
419 Mayer Building  
Portland 5, Oregon

A.B.C. KNUDSON, M.D., Chief  
Physical Medicine and  
Rehabilitation

Veterans Administration  
Department of Medicine  
and Surgery  
Washington 25, D. C.

GORDON MARTIN, M.D.  
Section on Physical Medicine  
and Rehabilitation  
Mayo Clinic  
Rochester, Minnesota

DONALD L. ROSE, M.D.  
Dept. of Physical Medicine  
Univ. of Kansas School of Medicine  
39th and Rainbow Boulevard  
Kansas City 3, Kansas

Recommendations should include the name and address of the candidate, his accomplishments in the field of Physical Medicine and Rehabilitation, and a statement indicating how his accomplishments have resulted in raising the discipline of the specialty to a higher standard.

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### WE WANT TO KNOW ABOUT YOU —

your activities, local and national, are of interest to us. *Remember, what may not be news to you is news to others.* Please send all information before the 15th of the month. The news blank is for your convenience — **send it in today!**

#### — MEMBERSHIP NEWS —

Archives of Physical Medicine and Rehabilitation

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Who?

What?

Where?

When?

Why?

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## MEDICAL NEWS

*Members are invited to send to this office items of news of general interest, for example, those relating to society activities, new hospitals, education, etc. Programs should be received at least six weeks before the date of meeting.*

### PERSONALS

**Arthur A. Rodriquez**, Chicago, addressed the staff of the Silver Cross Hospital on the subject "Physical Medicine and Rehabilitation" on December 3, 1953; on the same day he spoke over radio station WJOL on the topic "Preventive Exercise." On December 29, 1953, Dr. Rodriquez participated as a panel member of the Health Forum which was broadcast over radio station WGN and televised on WGN-TV. He represented the specialty Physical Medicine and Rehabilitation in the subject "Management of Arthritis." — **Bernard Stoll**, formerly Assistant Chief, Physical Medicine and Rehabilitation at Bronx VA Hospital, New York, is now Chief of Physical Medicine and Rehabilitation, Chicago West Side VA Hospital. Dr. Stoll's appointment was effective November 22, 1953. — The opening meeting of the winter series of Parent study groups at the St. Louis Society for Crippled Children heard **Alex Harell**, St. Louis, Mo., discuss mechanical aids in the home treatment of crippled children. — **James B. Mennell**, England, is serving as one of the Vice-Presidents of The Chartered Society of Physiotherapy.

**Anthony Cipollaro**, New York City, was elected Secretary-Treasurer of the American Board of Dermatology and Syphilology at its annual meeting in Philadelphia, October 15, 1953. — "Rehabilitation of the Geriatric Patient" was the topic selected for presentation by **John Aldes**, Los Angeles, at the Cedars of Lebanon Hospital Department of Rehabilitation program on January 7, 1954. — **Howard A. Rusk**, New York City, spoke on "Dynamic Therapeutics of Chronic Disease" at a recent meeting of the Jackson County Medical Society. — **A.B.C. Knudson**, Washington, D. C., has been selected to serve on a panel of five judges for the Edgar E. Best Award. — **Joseph Benton**, New York City, conducted a fifteen-day survey of medical rehabilitation services in Indian Service Hospitals. The survey was made for the U. S. Department of the Interior Bureau of Indian Affairs and the U. S. Public

Health Service. His itinerary included hospitals at Anchorage, Juneau and Sitka, Alaska; Tacoma, Wash.; Salt Lake City, Utah; Gallup and Albuquerque, N. M.; Amarillo, Texas, and Oklahoma City, Okla.

**Robert L. Bennett**, Warm Springs, Ga., participated in the Third Annual Meeting of the Georgia Society for Crippled Children, Inc., at the Academy of Medicine, Atlanta. — **Michael M. Dacso**, New York City, discussed "Rehabilitation Problems in General Practice" at a meeting of the Putnam County Medical Society last November. He also spoke at a dinner meeting of the Medical Out-Patient Department of the Cornell Medical Center; his topic was "Rehabilitation in Every-Day Practice." — At the national meeting of the Sociedad Cubana de Tisiologia, **Regina Castillo**, Havana, Cuba, spoke on "Rehabilitation of the Tuberculous Patient"; Dr. Castillo's topic for presentation at the International Congress on Pediatrics was "Rehabilitation of the Crippled Children and His Reincorporation to Society." Dr. Castillo is Chief of the Physical Medicine and Rehabilitation Service of the National Orthopedic Hospital at Havana. — **Frank H. Krusen**, Rochester, Minn., was honored for his work in the field of employment for the handicapped persons at a dinner meeting of the Upper Midwest Industrial Health conference held in Minneapolis last October. — **Wm. Benham Snow**, New York City, attended the Chicago meeting of the National Society for Crippled Children and Adults, Inc., on December 18, 1953.

### IN MEMORIAM

Dr. Walter E. Meanwell, 74, of Madison, Wisconsin, died December 2, 1953, of left ventricular heart failure; cardiac arrest, and coronary heart disease. Survivors include the widow, the former Helen Gath; two daughters, Mrs. James Bostad of Milwaukee and Mrs. Robert Cooper of Madison, and one son, Walter, Jr., who is attending the University of Virginia. Dr. Meanwell was a Congress member for many years.

### CLEVELAND CLINIC HOSPITAL ADDITION TO FEATURE "CONSTANT CARE" DEPARTMENT

A \$4,000,000 eight-story addition to Cleveland Clinic Hospital, which will increase its capacity from 357 to 577 beds, has been authorized by trustees of the Cleveland Clinic Foundation. While the new hospital unit is being built, an extensive modernization of the present Clinic Hospital will be made so that the result will be virtually the equivalent of an entirely new hospital. The plans incorporate many new features which were developed out of intensive studies of hospital methods conducted by the Clinic over the past several years.

The new unit will have twenty-two operating rooms which will be wired so that operations can be televised for the benefit of medical groups. Several will have observation stands. An innovation will be a "Constant Care" department adjacent to the operating rooms. This department will have forty-four beds and around the clock nursing attendance. All surgical patients will remain there for post-operative recovery.

### APPARATUS ACCEPTED

The following information relative to apparatus accepted by the Council on Physical Medicine and Rehabilitation of The American Medical Association is reprinted, with permission, from the January 2, 1954 issue of The Journal of The American Medical Association.

**Resp-Aid Iceless Oxygen Tent, Model 200:** Respiration Aids, Inc., 424 E. 123rd St., New York 35.

The Resp-Aid Iceless Oxygen Tent is an apparatus for administering oxygen, which has been electrically temperature-conditioned, to a patient in bed. The apparatus includes a transparent canopy that covers the patient, and a cabinet that contains the machinery. It can be wheeled to the bedside on casters. The motor requires 60 cycle alternating current at 115 volts and draws 700 watts.

Crated for shipment, the apparatus measures 103 by 60 by 70 cm. (40½ by 23½ by 26½ in.) and weighs 123 kg. (270 lb.). Unpacked, the cabinet containing the motor measures 159 (height including superstructure) by 41 by 59 cm. (53 by 16 by 23 in.) and weighs 87 kg. (190 lb.).

Evidence from sources acceptable to the Council showed that this apparatus was well made and gave good service.

**Telex Hearing Aid, Model 952:** Telex, Inc., Telex Park, St. Paul 1.

The Telex Hearing Aid, Model 952, is also called Super-Telex. It contains five vacuum tubes and requires two A-batteries (1.5 volt mercury cells) and one B-battery (45 volts). The body of the instrument measures 115 by 55 by 20 mm. and weighs 151 gm. In addition,

the three batteries weigh a total of 100 gm., the receiver cord 3 gm., and the receiver 8 gm.

Evidence of satisfactory construction and performance, both for air and bone conduction, was obtained from sources acceptable to the Council.

**S. & L. Enuresis Alarm, Model D:** S. & L. Signal Company, 525 Holly Ave., Madison 5, Wis.

The S. & L. Enuresis Alarm is an electric device that sounds an electric bell when the bed pad is wet by a patient. It consists essentially of two parts: (1) a control box containing a 22.5 and a 6 volt battery and a bell and (2) a bed pad consisting of two rectangular bronze wire screens separated by a layer of cloth. These two parts are connected to the control box by a cable. The bronze screens measure 56 by 61 cm. (22 by 24 in.), and when the cloth between them is wet by a conducting fluid a sufficient current flows to set off the alarm. The alarm rings until it is switched off by the user.

Packed for shipment the entire unit measures 20.3 by 61 by 33 cm. (8 by 24 by 13 in.) and weighs 5.9 kg. (13 lb.).

The Council obtained evidence that this device was helpful when used under medical supervision in cases of enuresis not attributable to physical disease.

**Otarion Hearing Aid, Model C-15:** Otariion, Inc., 4757 N. Ravenswood Ave., Chicago 40.

The Otariion Hearing Aid, Model C-15, incorporates one transistor with two vacuum tubes. It requires one mercury type 1.5 volt A-battery and one 15 volt B-battery. The body of the instrument measures 63 by 45 by 23 mm. and weighs 70 gm. The receiver, receiver cord, and two batteries bring the total weight to 108 gm.

**Acousticon Hearing Aid, Model A-17:** Dictograph Products Inc., 95-25 149th St., Jamaica 35, Long Island, N. Y.

The Acousticon Hearing Aid, Model A-17, incorporates three vacuum tubes and requires one 1.5 volt A-battery and one 15 volt B-battery. It can be used with any one of 10 air earphones and 3 bone receivers, adjusted for different acoustic responses.

The body of the instrument, disregarding minor projections, measures 82 by 65 by 22 cm. and weighs 76.5 gm. With clip attachment, receiver, receiver cord, and batteries, it weighs 132.5 gm.

**Acousticon Hearing Aid, Model A-185:** Dictograph Products Inc., 95-25 149th St., Jamaica 35, Long Island, N. Y.

The Acousticon Hearing Aid, Model A-185, incorporates three vacuum tubes and requires one 1.3 volt A-battery and one 30 volt B-battery. It can be used with any one of 10 air earphones and 3 bone receivers, adjusted for different acoustic responses.

The body of the instrument, disregarding minor projections, measures 77 by 45 by 22 mm. and weighs 73 gm. With receiver, receiver cord, and batteries, the total weight is 125 gm.

#### W.M.A. TO MEET IN ROME

The World Medical Association will meet in Rome, September 26 to October 2, 1954. Since 1954 is a Holy Year, there will be heavy demands for transportation and hotel reservations. Any A.M.A. member who wishes to attend this meeting should write to the World Medical Association, 345 East 46th Street, New York 17, as soon as possible. The W.M.A. will secure transportation and hotel reservations and will help plan any side tours of Europe which the member desires. No charge is made to the physician for this service.

#### AWARD FOR OUTSTANDING RESEARCH IN THE FIELD OF INFERTILITY

The American Society for the Study of Sterility announces the opening of the 1954 contest for the most outstanding contribution to the subject of infertility and sterility. The winner will receive a cash award of \$1,000, and the essay will be presented at the 1954 meeting of the society. Essays submitted in this competition must be received no later than March 1, 1954. For full particulars, address The American Society for the Study of Sterility, c/o Dr. Herbert H. Thomas, Secretary, 920 South 19th Street, Birmingham, Alabama.

The author should include on a separate sheet of paper a short biographical sketch of himself and a photograph to be used for publicity purposes should he be the winner of the award.

#### DR. ROBSON NAMED TO NEW POST

Dr. George B. Robson, associate clinical professor of medicine, Stanford University School of Medicine, San Francisco, has been named acting assistant dean of the school, succeeding Dr. William H. Northway, head of the division of physical medicine. Dr. Robson, who will remain in private medical practice in addition to his new duties as acting assistant dean, joined the medical faculty in 1937.

#### TOUR GROUPS WELCOME AT INSTITUTE

The complete rehabilitation service offered to the handicapped by the Institute for the Crippled and Disabled, 23rd Street at First Avenue, New York City, is now available for inspection by interested professional and lay groups through a newly inaugurated daily tour system.

These guided tours enable visitors to see all phases of the rehabilitation work carried on in the newly renovated building. Medical, social adjustment, vocational, and administrative operations will be included in the tour that covers the completely reconstructed thirty-seven year old agency. Groups wishing to tour the Institute should contact Miss Gloria Bappler, in charge of tour services, at OREGON 9-0100, Ext. 10.

#### RECENT PUBLICATIONS BY MEMBERS

Murray B. Ferderber, with co-authors, "Physical Restoration of the Chronically Ill and Aged." *Geriatrics*, April, 1953.

Harold Lefkoe and A. A. Martucci, "Modern Rehabilitation Following Cerebral Hemorrhage or Thrombosis." *Journal of the American Geriatric Society*, April, 1953.

Odon F. von Werssowetz, "Rehabilitation of the Hemiplegic." *Journal of the National Medical Association*, November, 1953.

Howard A. Rusk, "Meeting the Needs and Life Problems of the Paraplegic Patient." *The Merck Report*, July, 1953.

Wm. Benham Snow, "Methods and Goals in Childhood Rehabilitation." *Cerebral Palsy Review*, November, 1953.

Donald A. Covalt, "Rehabilitation of the Patient with Hemiplegia." *The Journal of The Kentucky State Medical Association*, January, 1954.

W. A. Selle, with co-author, "Some Physiological Aspects of Joints in Health and Disease." *American Journal of Physical Medicine*, December, 1953.

D. Elliott O'Reilly, "Evaluation of Cerebral Palsy Treatment." *Missouri Medicine*, January, 1954.

A.B.C. Knudson, "Physical Medicine and Rehabilitation." *American Archives of Rehabilitation Therapy*, December, 1953.

A. A. LaPlume, with co-author "Control of Deltoid Bursitis with Knott Technique of Blood Irradiation Therapy." *American Journal of Surgery*, October, 1953.

Louis B. Newman, "Medicine as a Basic Working Tool for the Therapist." *American Archives of Rehabilitation Therapy*, December, 1953.

Frederic B. House, with co-author, "Osteoarthritis of Knee: Importance of Quadriceps Femoris in Mechanism and Management." *Michigan State Medical Society Journal*, September, 1953.

Kenneth Phillips, "Ultrasonic Therapy: A Review of Its Present Status and Future Possibilities." *The Journal of The Florida Medical Association*, December, 1953.

Max K. Newman, with co-authors, "Electromyographic Diagnostic Methods in Rheumatoid Arthritis." *Michigan State Medical Society Journal*, September, 1953.

John F. Kuitert, with co-author, "Mechani-

cal Adjuvant for Dermatological Baths." A.M.A. Archives of Dermatology and Syphilology, December, 1953.

Louis W. Granirer, "Beneficial Effect of Postpartum Plasma in Case of Myasthenia Gravis." Connecticut State Medical Journal, October, 1953.

#### CLEVELAND PM&R SOCIETY

The Cleveland Society of Physical Medicine and Rehabilitation met January 28, 1954. "An Orthopedist Looks at Physical Medicine and Rehabilitation" was the topic presented by Jacob Epstein, M.D. Dr. Epstein is a resident in physical medicine and rehabilitation at Crile VA Hospital.

At this meeting, the following officers were elected for 1954: Harry T. Zankel, M.D., President; Roswell Lowry, M.D., Vice-President, and Bert Treister, M.D., Secretary-Treasurer.

#### POSTGRADUATE COURSE IN CEREBRAL PALSY

A postgraduate course in cerebral palsy, conducted by the College of Physicians and Surgeons Columbia University, is scheduled for (course for physicians) March 29-April 16, and (course for therapists) March 29-May 28, 1954.

Purpose: This course is designed 1) to acquaint potential leaders in this field with the basic knowledge concerning cerebral palsy; 2) to review the present status of practical therapy, including the medical, social, educational and psychological aspects; and 3) to point out the controversial features of our present understanding.

Content: (For Physicians) Lectures and demonstrations will survey the scientific facts relative to cerebral palsy and its therapy, in the broadest possible sense. In addition, the physician will observe leading treatment facilities in New York City under the personal tutelage of the physician in charge.

(For Therapists) A basic orientation to the various aspects of cerebral palsy will be presented by lectures and demonstrations in the early weeks. Later, the therapist will observe and participate in cooperating cerebral palsy centers in the New York area, with emphasis on the specific discipline of the therapist. Continued classroom instruction, chiefly of a discussion type, will point out the interrelationship of the various therapeutic techniques, the administrative details of the treatment center, and the relationship of scientific knowledge to practical treatment procedures.

For further information write, Office of the Dean, College of Physicians and Surgeons, 630 W. 168th St., New York 32, N.Y.

#### BOOKS RECEIVED

Books received are acknowledged in this column as full return for the courtesy of the senders. Reviews will be published in future issues of the journal. Books listed are not available for lending.

**Pathology (Second Edition)** by W. A. D. Anderson; The C. V. Mosby Company, St. Louis, Mo.

**The Radiology of Bones and Joints (Fifth Edition)** by James F. Brailsford; The Williams & Wilkins Company, Baltimore, Md.

**A Translation of Luigi Galvani's De viribus electricitatis in motu musculari commentarius. Commentary on the Effect of Electricity on Muscular Motion** by Robert Montraville Green; Elizabeth Licht, Cambridge, Mass.

**Vitamins and Hormones (Volume XI)** by Robert S. Harris, G. F. Marrian, and Kenneth V. Thimann; Academic Press, Inc., New York, N.Y.

**Medical Education Today: Its Aims, Problems and Trends** by Joseph C. Hinsey; Association of Medical Colleges, Chicago, Ill.

**VIII<sup>e</sup> Congres International des Maladies Rhumatismales** by I. Rapports; Medecine et Hygiene, Geneva, Switzerland.

**Physiology (Second Edition)** by Rolland J. Main and Alfred W. Richardson; The C. V. Mosby Company, St. Louis, Mo.

**Biochemical Preparations (Volume 3)** edited by Esmond E. Snell; John Wiley & Sons, Inc., New York, N.Y.

**The Alkaloids: Chemistry and Physiology (Volume III)** edited by R. H. F. Manske and H. L. Holmes; Academic Press, Inc., New York, N.Y.

**Your Skin and Its Care** by H. T. Behrman and O. L. Levin; Emerson Books, Inc., New York, N.Y.

**Health Yearbook 1953** by Oliver E. Byrd; Stanford University Press, Stanford, Calif.

**Disease and Its Conquest** by G. T. Hollis; Oxford University Press, New York, N.Y.

**Statistical Methods in Experimentation: An Introduction** by Oliver L. Lacey; The Macmillan Company, New York, N.Y.

**Effective Inhalation Therapy** by Edwin Rayner Levine; National Cylinder Gas Company, Chicago, Ill.

**Human Factors in Air Transportation: Occupational Health and Safety** by Ross A. McFarland; McGraw-Hill Book Company, Inc., New York, N.Y.

**Surgery of Repair as Applied to Hand Injuries** by B. K. Rank and A. R. Wakefield; The Williams & Wilkins Company, Baltimore, Md.

**American Pocket Medical Dictionary**; W. B. Saunders Company, Philadelphia, Pa.

**Peptic Ulcer: Pain Patterns, Diagnosis and Medical Treatment** by Lucian A. Smith and Andrew B. Rivers; Appleton-Century-Crofts, Inc., New York, N.Y.

**Triumph of Love** by Leona S. Bruckner; Simon and Schuster, Inc., New York, N.Y.

#### EXPANSION OF SERVICES

A record expansion of direct services with the opening of more new facilities for crippled children than ever before in its history, was reported by the National Society for Crippled Children and Adults. A few of the centers opened or put under construction include:

- \$1,000,000 Crotched Mountain Rehabilitation Center in Greenfield, N.H.;
- \$1,226,000 crippled children's hospital in New Orleans;
- Expansion of the Bay State Rehabilitation Center through a move into the ground floor of the new \$7,000,000 Municipal Hospital in Springfield, Mass.;
- Cerebral palsy treatment center in the new Utah Children's Health Center in Salt Lake City;
- 50,000 square foot site acquired for the construction of a sheltered workshop by the Minnesota Society for Crippled Children;
- Instruction and therapy center for Negro children with cerebral palsy in Jackson, Tenn.;
- Million and a half dollar children's hospital in San Diego, Calif., with a large section set aside for special services for crippled children;
- \$100,000 Samuel E. Gompers Rehabilitation Center in Phoenix;
- Center for crippled children in Boise, Idaho, and
- Statewide speech rehabilitation service began operation in Mississippi.

The 874 specific services and facilities either in operation or in the process of development by Easter Seal Societies in 1953 in every one of the 48 states, as well as the District of Columbia, Alaska, Hawaii and Puerto Rico, include: 135 diagnostic and evaluation clinics; 181 outpatient treatment centers, rehabilitation centers and curative workshops; 10 residential facilities, such as convalescent homes and crippled children's hospitals; 33 itinerant therapy programs; 66 additional centers given Easter Seal assistance; 153 public school treatment units assisted; 117 resident camping programs; 53 day camps; 43 sheltered workshops and homebound employment programs; 33 craft outlets, and 29 planned treatment centers.

#### AMERICAN HEARING SOCIETY OPENS ANNUAL COMPETITION KENFIELD MEMORIAL AWARD

Competition for the Kenfield Memorial Scholarship, awarded annually by the American Hearing Society to a prospective teacher of lipreading, will open March 1, 1954. Ap-

plication blanks may be obtained by writing to the society's national headquarters at 817-14th St., N.W., Washington 5, D. C.

The deadline for returning completed applications is May 1, and should be mailed to Mrs. Eleanor C. Ronnei, c/o New York League for the Hard of Hearing, 480 Lexington Ave., New York 17, N. Y. The winner will be announced during National Hearing Week, May 2-8, 1954.

Winner of the annual award is entitled to take a teacher training course in lipreading from any school or university in the United States acceptable to the Teachers Committee. The scholarship is to be used within one year from the date of award. A satisfactory applicant for the award must be a well adjusted individual with a pleasing personality, legible lips, good speech and voice and no unpleasant mannerisms. Graduation from college with a major in education, psychology and/or speech is a requirement. Specifications for a hard of hearing contestant include thirty clock hours of private instruction in lipreading from an approved teacher or sixty hours of lipreading in public school classes under an approved teacher. Rules for competition state that an applicant shall plan to teach lipreading with or without other types of speech or hearing therapy.

#### AEC ANNOUNCES 25-BILLION-VOLT ACCELERATOR TO BE BUILT AT BROOKHAVEN

The U. S. Atomic Energy Commission has approved design and construction at Brookhaven National Laboratory of an ultra-high-energy particle accelerator for nuclear research. The new machine, an alternating gradient synchrotron, will be designed to produce beams of protons of energies ranging up to 25 billion electron volts.

The alternating gradient synchrotron will use a series of alternate strongly converging and diverging magnetic fields to confine a proton beam in a tube of relatively small cross-section. This focusing effect allows the production of high-energy beams with smaller electromagnets and related equipment than would otherwise be possible.

The cost of design and construction of the new accelerator is estimated at \$20,000,000. Design work will start at Brookhaven in the near future and it is expected that the machine can be completed in 5 to 6 years. Once in operation, it will be available to scientists wishing to collaborate in Brookhaven research programs or to carry out independent programs.

As a means of producing nuclear reactions under controlled conditions on a laboratory scale, particle accelerators have played an important role in the advancement of nuclear science and contributed much of the fundamental scientific information used in the de-



sign of nuclear reactors. The energy of the particle beams produced by accelerators bears a direct relationship to the nuclear phenomena that can be studied. As higher energy levels have been attained in laboratory machines, new sub-nuclear particles have been discovered and new nuclear phenomena observed.

The most powerful accelerator now in operation is the Brookhaven Cosmotron, which has accelerated protons to energies of 2.3 billion electron volts. The Bevatron, under construction at the University of California Radiation Laboratory at Berkeley, is expected to accelerate particles into the 5 to 7 billion electron volt range. By providing particles with energies as high as 25 billion electron volts, the Brookhaven alternating gradient synchrotron is expected to contribute important new knowledge of the fundamental nature of matter.

Brookhaven National Laboratory, a research center equipped with facilities which no single university could afford to build or support, is operated for the AEC by Associated Universities, Inc., a corporation formed by nine northeastern universities. The institutions represented are Columbia University, Cornell University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology, Princeton University, University of Pennsylvania, University of Rochester and Yale University.

#### VD SYMPOSIUM SCHEDULED

The Sixth Annual Symposium on Recent Advances in the Study of Venereal Diseases will be held in the auditorium of the Department of Health, Education, and Welfare, Washington, D. C. on April 29 and 30, 1954.

The sessions are open to all physicians and workers in allied professions. These symposia are the occasion for exchange of the latest available information by some of the outstanding authorities in the field of venereal disease.

The topics that will be discussed at this symposium will cover many aspects of venereal disease control including basic and clinical research, serology, epidemiology, treatment, program operation, and professional education.

#### POLIO HANDICAPPED AND THOSE DISABLED AFTER BIRTH SHOW BEST EMPLOYMENT RECORDS

Among the rehabilitated physically handicapped, victims of polio are the most successful in securing gainful employment. The cerebral palsied are the least successful. Persons disabled at birth are the least likely to be successful in finding jobs, while persons disabled after birth but before the age of thirty are the most successful.

These are some of the results revealed in a three-year research study of the status in the community of some 500 physically disabled persons who were rehabilitated at the Institute for the Crippled and Disabled rehabilitation center in New York City. The study arose from the necessity for evaluating rehabilitation procedures and understanding the ways in which physically handicapped persons function in their communities. The full results of the study, which was sponsored by the Institute for the Crippled and Disabled and the Columbia University College of Physicians and Surgeons under a Bernard Baruch grant, are contained in a nine-chapter report. The study was directed by Mrs. Marion S. Lesser of the Research Staff of the Institute for the Crippled and Disabled, and Dr. Robert C. Darling of the Department of Physical Medicine and Rehabilitation, College of Physicians and Surgeons, Columbia University, and Chairman of the Institute's Medical Board.

Two groups of physically disabled people, formerly patients or students at the Institute, were sought out and interviewed concerning their vocational, social and physical status. The groups were separated by a ten-year time interval in their rehabilitation experience. The first group was comprised of 264 people discharged from the Institute in 1940 and 1941, and the second group consisted of 267 persons discharged in 1948 and 1949. Of the first group seventy-one per cent were gainfully employed at the time of the follow-up interview in 1951, as compared with forty-one per cent of the more recently discharged group. In both groups polio patients were the most successful, with eighty-two per cent of the earlier group and seventy-one per cent of the later group finding employment. Cerebral palsy patients were the least successful with sixty-one per cent of those discharged in 1940-41 finding employment and only twenty-two per cent of those discharged from the Institute in 1948-49.

Slightly over seventy per cent of the amputees in the 1940-41 group found employment as compared with one-third of the 1948-49 group. In comparing the two amputee groups, it was learned that the 1940-41 cases were younger at the time of disablement and that their handicaps were less complicated. This is one of the reasons why a much larger percentage of the earlier amputee group has found and held employment.

Practical experience in the community is of great value in promoting vocational achievements. The handicapped whose rehabilitation had taken place ten years prior to being interviewed for this study were consistently more successful in getting and holding jobs than those, equally disabled, in the 1948-49 group.

Through its comparison of the two groups

of disabled people, the study shows that modern rehabilitation centers are treating a generally more severely disabled group today than they were ten or more years ago. It was also revealed that community attitudes toward the disabled have, during this period, improved so that in most cases the mildly disabled need no longer seek out the special services of a rehabilitation center, but can go directly into competition with the able-bodied.

Investigation of factors which increase rehabilitation potential revealed that intelligence, education and physical independence all have a positive influence on employment success. Handicapped persons who do best in finding and holding employment are those who have achieved physical independence despite disability, who have normal intelligence, and who at least have partially completed high school.

#### NEWLY REGISTERED THERAPISTS

November 25, 1953

Buchanan, Margaret Jane, Rt. 2, Diamond, Pa.

Peterson, Christie Ann, 515 Hilaire Rd., St. Davids, Pa.

December 3, 1953

Carothers, Julia Ann, 1350 High, Topeka, Kan.

Dunn, William James, 2043 S. 81st St., West Allis, Wis.

Loehr, Eugene Martin, 121 W. Mill St., Colorado Springs, Colo.

Roop, Suzanne Jane, 3560 E. Douglas, Wichita 8, Kan.

Thompson, Walter Woodrow, St. Francis, Kan.

Towers, Louise Harwood, 44B Torch Hill Rd., Columbus, Ga.

Weller, Dorothy, 721 W. Park St., Stockton, Calif.

December 10, 1953

Bingham, Riley Barton, 4038 Cumberland Ave., Los Angeles 27, Calif.

Boyle, Doris Elaine, 21256 Audette St., Dearborn, Mich.

Cain, Kathleen Mary, 1932 E. 97th St., Cleveland, Ohio.

Call, Clifton Boyd, 4424 Sunset Dr., Los Angeles 27, Calif.

Carr, Georgie Mae, 1628 Eighth St., Slidell, La.

Clements, Ruth Lois, 844 N. York St., Dearborn, Mich.

Clizer, Eileen Faith, Waverly, Wash.

Conwell, Mary Isabel, 2485 Wellington Rd., Cleveland Heights, Ohio.

Cottave, Cecille Janet, 1550 N. Verdugo

Rd., Glendale 8, Calif.

Damsbo, Ann Marie, 650 E. Hill Ave., Escondido, Calif.

Donahoe, Ann Catherine, 123 N. Barnard St., State College, Pa.

Fisher, Howard M., 10712 Strathmore Dr., Los Angeles 24, Calif.

Goodman, Harriette Sarah, 50 Evelyn Rd., Waban 68, Mass.

Guidry, Raymond Feirleman, 918 Orleans St., New Orleans, La.

Hanger, Juanita Ann, 1915 N. 28th St., Omaha 10, Neb.

Harris, Joyce Marie, 1244 W. 84th St., Los Angeles 44, Calif.

Jolissaint, Donald Everett, 3065 Wickfield Dr., New Orleans, La.

Jones, Agnes, 4306 S. Grand St., Monroe, La.

Kenmotsu, Sotoi, 5601 S. Blackstone Ave., Chicago, Ill.

Keogh, Roderick Boucher, 11015 S. E. 240th, Kent, Wash.

Keyes, Shirley Jean, 4021 Lark St., San Diego 3, Calif.

Krueger, Joann Lumley, 2225 Montana Ave., Santa Monica, Calif.

Lamade, Sarah Anne, 423 Grampian Blvd., Williamsport, Pa.

Landry, Harry Louis, Box 104, Klotzville, La.

Lanson, Lucienne Theresa, 1627 Hyde St., San Francisco, Calif.

Lewis, Dorothy Corrine, Shaw, Miss.

Lister, Marilyn Jean, 1233 W. 65th Pl., Los Angeles 44, Calif.

Lowe, Marylyn Jane, 1422 W. Decatur St., Decatur, Ill.

MacTaggart, Lois, 206 S. Lakoma, Norman, Okla.

Nichols, Jeanette Amelia, 168 Woodland Ave., Bridgeport, Conn.

Pilmer, Richard B., 1401 Roscomare Blvd., Los Angeles 24, Calif.

Porto, William A., 4350 W. 60th St., Cleveland 9, Ohio.

Ramos, Nancy Chapman, 779 Maple St., Spartanburg, S. C.

Rovner, Sydelle, 3619 Buckingham Rd., Los Angeles, Calif.

Schwerha, Ruth Irene, 546 Thompson Ave., Donora, Pa.

Snuggs, Mariwyn Somers, 56 Fenton Ave., Mogadore, Ohio.

Strong, Corrine Louise, Bentonla, Miss.

Sutherland, Roger Allen, 10003 Roschill, Cleveland, Ohio.

Talbot, Lennes Antoine Jr., 2578 Lorraine St., Baton Rouge, La.

Taylor, Dorothy Marree, 4425 Cromwell Ave., Los Angeles 27, Calif.

Tessier, Florence Annette, 621 Pioneer Dr., Glendale, Calif.

Thurman, Jo Anne, 4361 Evangeline St., Baton Rouge, La.

Todd, Mary Martina, 516 Leland Ave., Des Moines 15, Iowa.

Van Harn, Mary Ardella, 525 Rich Ave., Zeeland, Mich.

Walroth, Geraldine Vee, 856 W. 42 Pl., Los Angeles 37, Calif.

Weber, Mary Ellen, 606 9th St., Manhattan Beach, Calif.

December 11, 1953

Chard, Ronald Leslie, Jr., Seventh St., Pomeroy, Wash.

Floyd, Virginia Lee, Rt. 1, Orrum, N. C.

Fortenbacher, Mary Judith, Rt. 2, Hendersonville, N. C.

Freeman, Martha, 419 Wayland Ave., Providence 6, R. I.

Gamet, Jack, 832 N. E. 10th St., Grants Pass, Ore.

Howe, Suzanne Atwood, 21 Oakwood Dr., Williamsville, N. Y.

Hurlburt, Sally Ann, 750 Highland Ave., Salem, Ohio.

Jenks, Constance Warren, 54 Garden St., Cambridge, Mass.

Lautzenheiser, Charles Norman, 3428 S. Wayne Ave., Ft. Wayne, Ind.

Lowe, Ann Elizabeth, 1245 N. President St., Jackson, Miss.

December 12, 1953

Brown, Elaine J., 204 Eighth Ave., Sterling, Ill.

Campbell, Marian Susan, 949 W. Cushing St., Decatur, Ill.

Fisher, Verna Agnes, Rt. 1, Colfax, Wash.

Frandsen, Beth, 211 S. Second East, Price, Utah

Garhart, Myra J., 4033 Lilac Lane, Rapid City, S. D.

Leone, Carla Joan, 7211 Sheridan Rd., Chicago, Ill.

Miller, Doris Ann, 6748 Prairie Ave., Chicago, Ill.

Nessinger, Rita Therese, 1627 E. 86th St., Chicago, Ill.

Pinkston, Dorothy, 5145 Ashford Dunwoody Rd., Chamblee, Ga.

Price, Martha Jean, 624 S. Celia Ave., Muncie, Ind.

Sander, Sharon Lynn, 257 Dorchester Ave., Cincinnati, Ohio.

Wilson, Jean Marie, 73 Ross Ave., Demarest, N. J.

Woodward, Lois Jean, 1500 Hollywood Ave., Cincinnati 24, Ohio.

December 18, 1953

McCall, Barbara Jane, 507 S. Seventh, Grand Haven, Mich.

December 30, 1953

Jones, Joan Lothberg, 222 3rd St., N., Virginia, Minn.



"Scalpel . . . forceps . . . syringe . . . textbook . . ."

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## PHYSICAL MEDICINE ABSTRACTS

**Diabetes Mellitus in the Aged. Joseph I. Goodman, and Leonard B. Goldberg.**

Ohio State M.J. 49:981 (Nov.) 1953.

It is generally believed that there is a basic difference between diabetes mellitus in the older age groups and that in younger persons. The older diabetic's condition is likely to remain stationary or may even require less insulin as time progresses. In other words, they do not appear to demand as close supervision as do younger persons. Also, in older patients the condition develops more insidiously, so that the exact time of onset is not as readily ascertainable as in younger diabetics. It is agreed that a considerable proportion of older diabetics require no insulin and become aglycosuric on diet alone. Further, it is assumed that those who require insulin are the so-called stable type of diabetic who would do well on any kind of insulin and that the majority are on small or moderate doses (under forty units). Certainly, everyone admits that the older diabetic should be treated with extreme caution to avoid vascular accidents.

In order to determine whether diabetes in the aged is actually distinctive and, if so, to define these characteristics more clearly, fifty-nine consecutive case records of diabetic patients in whom diabetes was first discovered after the age of sixty were reviewed. Neurologic signs were present in twenty-nine of the fifty-nine cases studied. The most frequent sign was an absent or greatly diminished achilles tendon reflex. While diabetic neuropathy may occur at any time from childhood to very old age, most authors report the average age of patients with evidence of neuropathy to exceed fifty years and an increasing proportion in each succeeding decade.

Vascular lesions are the most frequent lesions by far which were encountered being present in fifty-seven of the fifty-nine cases. Until recently, it was presumed that arteriosclerosis is a natural concomitant of aging and that an early onset of arteriosclerosis simply implies premature onset of senility. The fallacy of this concept is clearly apparent in diabetics in whom the onset of arteriosclerotic complications is so common at earlier ages.

One of the troublesome manifestations of ischemia in these patients with peripheral atherosclerosis is long, thickened toenails frequently closely adherent to the nailbed. In such patients the feet require very skillful handling. The patients must be cautioned against cutting their own toenails and corns since many of them have poor eyesight and very unsteady hands. The feet should be kept clean by daily washing and dried thoroughly. Tinea infection should be sought and promptly eliminated, avoiding strong irritating local preparations such as salicylic acid or iodine.

**Alterations of the Lumbar Curve Related to Posture and Seating. J. Jay Keegan.**

J. Bone & Joint Surg. 35:589 (July) 1953.

One of the most common complaints of persons with low-back pain is the inability to sit in comfort, and with difficulty in straightening the back on rising. This is particularly noticeable after long periods of sitting in a lounge chair, an automobile, or a theater seat, all of which are supposed to be comfortable. This common complaint must represent some fundamental defect in the conception of the correct sitting position and in the design of chairs and seats. Only young persons with elastic ligaments and no back pain can tolerate sitting for any length of time in the type of seats commonly designed. Older persons, who use chairs more frequently, do not have this elasticity and often sit in discomfort.

This article presents an analysis of the subject of seating in relation to back symptoms. The work was based on a careful clinical study of over 3,000 persons with low-back complaints; 1,504 of whom were operated upon for herniation of a lower lumbar intervertebral disc 4,5,6,7,8,9,10, as well as on a special study of the alteration of the lumbar curve in various sitting and standing positions.

The normal curve of the lumbar spine in adult man is determined by maintenance of the trunk-thigh and the knee angles at approximately 135 degrees. Alteration of this normal lumbar curve, either an increase in

standing erect or a decrease in sitting or stooping, is caused largely by the limited length and consequent pull of the trunk-thigh muscles of the opposite side. The most important postural factor in the causation of low-back pain in sitting is decrease of the trunk-thigh angle and consequent flattening of the lumbar curve. The next most important cause of low-back pain in sitting is lack of primary back support over the vulnerable lower lumbar intervertebral discs.

Added factors of comfort in seating are the shortness of the seat, a rounded narrow front border, an open space beneath for better positioning of the legs, and permissive change of position in the seat.

#### **Intra-Articular Hydrocortisone in the Treatment of Arthritis. Joseph L. Hollander.**

Ann. Int. Med. 39:735 (Oct.) 1953.

A total of 8,693 intrasynovial injections of hydrocortisone had been given in 852 patients with a variety of rheumatic diseases. At least partial amelioration of local symptoms and signs, often persisting for weeks or months, resulted in most instances. Adverse effects were rare and nearly always mild and self-limited. Although the period of observation had extended over more than two years, the treatment must still stand the further test of time before its complete acceptance as a therapeutic agent in the local management of rheumatic diseases.

This form of therapy is strictly for local palliation and is not a substitute for systemic therapy for any generalized rheumatic process. Likewise, supportive therapy should not be neglected when this adjunct is employed. Intra-articular hydrocortisone has proved a useful adjunct to general measures in the management of rheumatoid arthritis, osteoarthritis and gout, particularly when one or only a few joints are actively involved. For localized conditions such as bursitis, traumatic arthritis, tennis elbow and tenosynovitis such as "trigger finger," hydrocortisone injections have been successfully employed alone.

Since local hydrocortisone injections into one or two joints at a time practically obviates the danger of systemic hormonal effects, it can be used in patients in whom contraindications to systemic cortisone therapy exist. This local method has proved valuable as an adjunct in orthopedic surgery and in rehabilitation.

The only contraindications to the employment of intra-articular hydrocortisone are the presence of infection in or near the joint, or disease so widespread that local therapy is impractical. Arthritis of spinal joints is not amenable to this form of therapy for anatomic reasons.

#### **Old Age and the Vices. Russell L. Cecil.**

Geriatrics 1:604 (Sept.) 1953.

Old age, even when asymptomatic, has comparatively few compensations. The most important of these is probably the leisure which comes after years of preoccupation with business and professional duties. Time marches on, even for the aged, but there is more of it available for pleasant indulgences. There is time for reading and meditation, time for travel, time for recreation and sport, time for the sheer enjoyment of friends and family. However, one can't read and meditate all the time! There must be other interesting and even adventurous digressions. And here is where the more innocuous vices come into the picture as distinguished from the really reprehensible ones such as lying, stealing, avarice, etc. The vices come within the ken of medical practice and for that reason have a special interest to physicians. In their mildest manifestations, they are more properly referred to as habits. A man who smokes two cigars a day or who has a cocktail every night before dinner might very naturally resent such comparatively innocent pastimes being labeled as vices. These habits, or vices of the flesh, so to speak, when practiced in moderation afford much diversion and pleasure to human beings of all ages and usually are passed over without censure in the taking of medical histories. Modest addiction to alcohol and tobacco, a vigorous appetite, even an occasional sleeping tablet, are recorded without comment by the average physician.

#### **The Use of Iproniazid in the Treatment of Bone and Joint Tuberculosis. David M. Bosworth; Howard A. Wright; J. William Fielding, and Hudson J. Wilson.**

J. Bone & Joint Surg. 35:577 (July) 1953.

The present experiment reports upon the use of iproniazid of sixty-six patients with tuberculosis of bones and joints. Among these patients there were ninety-eight tuberculosis lesions; forty-five of these healed, thirty-seven were improved, and sixteen are unimproved. Included are a few tuberculous lesions not involving the osseous system, but exclusive of pulmonary tuberculosis (skin, peritoneum, meninges, et cetera). Four of these patients were under continuous medication with iproniazid since November, 1951. No adverse findings resulted from this prolonged medication when dosage had been held within proper limits. No cumulative effects were noted.

Iproniazid has a great effect in the control of bone and joint infection by the *Mycobacterium tuberculosis*. For the present iproniazid is believed to be the drug of choice in the treatment of tuberculous bone

and joint lesions. It has proved of great value in patients not responding satisfactorily to preceding antibiotic therapy. Iproniazid therapy must be combined with good medical and dietary care, and surgery when indicated.

Patients under medication exhibit multiple evidences of toxicity. All these are mild or reversible and appear unimportant, except

possibly psychosis. Psychoses appear rarely, can probably be avoided by dosage reduction, and also seem reversible. In tuberculous patients with severe or multiple involvement, a percentage of mortality and failure must be expected.

It may be that, by the use of this drug in children, a tuberculous weight-bearing joint may be spared arthrodesis.

### ROCKY MOUNTAIN SECTION TO MEET

A meeting of the Rocky Mountain Section of the American Congress of Physical Medicine and Rehabilitation will be held April 10, 1954, University of Colorado School of Medicine, Denver. Complete information and details relative to this session may be had by writing Jerome Gersten, M.D., Secretary, Department of Physical Medicine and Rehabilitation, University of Colorado, 4200 E. Ninth Ave., Denver 7.

### ULTRASOUND

will be discussed at the February 24, 1954, meeting of the Chicago Society of Physical Medicine and Rehabilitation. Paul A. Nelson, M.D., Cleveland Clinic, will present "Foundation of Ultrasonics in Medicine" and Dr. Otto F. Hug, Instructor in Pathology, Max Planck Institute for Biophysics, Frankfurt, Germany, will speak on "Effects of Ultrasound on Tissues."

The meeting is scheduled at Loyola University Stritch School of Medicine, 706 S. Wolcott St., Chicago, 8:00 p.m. For full particulars, write Joseph L. Koczur, M.D., Secretary-Treasurer, 55 E. Washington St., Suite 1716, Chicago 2.

**APRIL 10, 1954**, is the date scheduled for the Eastern Sectional Meeting of the American Congress of Physical Medicine and Rehabilitation at Newark, New Jersey. The complete program will be published in the March issue of the *ARCHIVES*. Inquiries should be directed to Herman L. Rudolph, M.D., Secretary, 400 N. Fifth St., Reading, Pa.



## BOOK REVIEWS

*The reviews here published have been prepared by competent authorities and do not necessarily represent the opinions of the American Congress of Physical Medicine and Rehabilitation and/or the American Society of Physical Medicine and Rehabilitation.*

**THE ANATOMY OF THE NERVOUS SYSTEM.** Its Development and Function. By *Stephen Walter Ranson, M.D., Ph.D.*, Late Professor of Neurology and Director of Neurological Institute, Northwestern University Medical School, Chicago. Revised by *Sam Lillard Clark, M.D., Ph.D.*, Professor of Anatomy, The Vanderbilt University School of Medicine, Nashville. Ninth edition. Cloth. Price, \$8.50. Pp. 581, with 434 illustrations, 18 in color. W. B. Saunders Company, West Washington Sq., Philadelphia 5, 1953.

This text has achieved an enviable reputation as an essential reference work for students and specialists in neurology. The presence of this ninth edition is witness to this fact. The structure of the nervous system is systematically described, beginning with some fundamental embryology and including gross anatomy. The separate areas are then studied in more detail with appropriate reference to function as well as morphology. Essential neurophysiology is included with appropriate modern references.

Some clinical illustrative case material is included and also a laboratory outline with descriptions of cross sections and questions for teaching purposes. Illustrations are of great importance in education, particularly in this area of medical science, and this text is liberally provided with photographs and diagrams. This is an excellent work for medical students and for reference libraries, but not especially adapted for the clinician.

**PHARMACOLOGY AND TOXICOLOGY OF URANIUM COMPOUNDS.** Chronic Inhalation and Other Studies. Part 3 and Part 4. Edited by *Carl Voegtlin, Ph.D.*, Lecturer in Cancer Research and Toxicology, School of Medicine and Dentistry, University of Rochester; formerly Chief of the Division of Pharmacology, National Institute of Health, U. S. Public Health Service; formerly Director of Cancer Research and Chief of the National Cancer Institute and *Harold C. Hodge, Ph.D.*, Professor of Pharmacology and Toxicology, School of Medicine and Dentistry,

University of Rochester. First edition. Cloth. Price, of two volumes, \$18.00. Part 3, pp. 1087 to 1778, part 4, pp. 1779 to 2466. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 1953.

These two volumes continue the monumental series in which are published, for the record, the details of the chemical and biological work of the great Atomic Energy Project of World War II. The method used to designate the various volumes is quite perplexing, for some "volumes" consist of more than one separately bound "part", and there appears to be some vacillation between Roman and Arabic numerals, so that it is not immediately evident whether Part II is the same, for instance, as Part 2. The editors have made a visible effort to keep things organized. Although it is sometimes difficult to locate summarizing statements, or to make sure that what one has found is the definitive opinion on the subject, the individual chapters are clearly written and free from sources of error or confusion. The two present volumes deal with one of the finest achievements of the project — the large-scale handling of some of the most vicious chemicals known to man. Chapter 28, dealing with some assorted compounds of fluorine, uranium, and boron, is especially interesting for this reason.

This book will be essential as a reference work in every library of toxicology, radiobiology, and industrial medicine.

**THE AUTONOMIC NERVOUS SYSTEM: ANATOMY, PHYSIOLOGY AND SURGICAL APPLICATION.** By *James C. White, M.D.*, Associate Professor of Surgery, Harvard Medical School, Boston, *Reginald H. Smithwick, M.D.*, Professor and Chairman of Department of Surgery, Boston University School of Medicine, Boston and *Fiorindo A. Simeone, M.D.*, Professor of Surgery, Western Reserve University School of Medicine, Cleveland. Third edition. Cloth. Price, \$12.00. Pp. 569, with 108 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1952.

This third edition is essentially a new text, as it is completely revised and enlarged. Although it is written chiefly for the neurosurgeon or those performing surgery on the autonomic nervous system, it is so documented with neurophysiologic data that it may serve as a valuable reference for all concerned with problems of autonomic nervous system disorders, whether physician or surgeon. Consequently it is a particularly valuable reference text for physiatrists as it gives authoritative opinions on problems of pain which are so closely related to the practice of physical medicine and rehabilitation.

This text should be available to all physiatrists, since it includes the basic anatomy and physiology of problems of pain and other disorders which so frequently bring patients to the physiatrist for treatment.

**GOUT AND GOUTY ARTHRITIS.** By *John H. Talbot, M.D.*, Professor of Medicine, The University of Buffalo School of Medicine; Physician-in-Chief, Buffalo General Hospital, Buffalo, New York. Cloth. Price, \$4.00. Pp. 92, with 32 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

The text is another of the modern medical monographs. It is the work of a well-known authority in the study of gout, who has assembled once again in a comprehensive treatise pertinent laboratory data on uric acid metabolism and clinical impressions of the dyscrasia known as gout. The subject is thoroughly discussed and covers most adequately the etiology, symptoms, diagnosis and treatment of the disease. The text is recommended for use by all interested physicians.

**PROGRESS IN BIOPHYSICS AND BIOPHYSICAL CHEMISTRY.** Volume 3. Edited by *J. A. V. Butler*, Professor of Physical Chemistry, University of London, Chester Beatty Research Institute, Royal Cancer Hospital, London; and *J. T. Randall, F.R.S.*, Wheatstone Professor of Physics in the University of London at King's College. Cloth. Price, \$9.50. Pp. 386, with illustrations. Academic Press Inc., New York; Pergamon Press Ltd., London, 1953.

This is the third volume of a series which was started in 1951. In the preface of the first volume, the editors emphasized that it is impossible in a single volume to deal at length with more than a few topics and that they intend to publish further reports at regular intervals. This plan is being carried through, and a high quality of presentation has been maintained in the three volumes which have appeared thus far. In the third volume, twelve authors from research centers in England, Australia, Belgium, France and

Sweden have contributed nine reviews on various biophysical subjects. A list of the titles of these reviews furnishes a picture of the wide area covered: Autoradiography, Polarised Ultraviolet Microspectrography and Molecular Structure; The Infra-Red Spectra of Biologically Important Molecules; Some Physico-Chemical Studies on Viruses; Mechanisms of Biological Actions of Ultraviolet and Visible Radiations; Recent Work on the Application of the Theory of the Ionic Double Layer to Colloidal Systems; Microspectrometry of Living and Fixed Cells; Methods of Determining the Form and Dimensions of Particles in Solution; Transport Processes and Electrical Phenomena in Ionic Membranes. All reviews are well balanced as to length and contents. The chapters are well illustrated and accompanied by exceptionally extensive reference lists. The book can be highly recommended to all research workers in the fields of biophysics and biochemistry. One looks with expectancy to further volumes of this series.

**RHEUMATOID ARTHRITIS IN CHILDREN: A CLINICAL STUDY.** By *Borge Sury*. (Thesis, M.D., University of Copenhagen, 1951. Translation by Axel Andersen.) Paper. Price, Dan. Kr. 10/-. Pp. 93. Ejnar Munksgaard Forlag, Norregade 6, Copenhagen K, 1952.

A small monograph about an important subject, this is a study of 151 patients less than 15 years of age, with an established diagnosis of rheumatoid arthritis, or Still Disease, who were seen in Copenhagen from 1920 to 1948. The purpose of the study was to find out if the non-specific chronic polyarthritis seen in children is a distinct disease or but a form of rheumatoid arthritis as seen in this age group.

The author's material was compared with the findings in other countries, principally the Scandinavian countries, England and the U.S.A. The incidence in Denmark appeared to be less than elsewhere; according to his figures, 27 cases per one million inhabitants per year were encountered. His study revealed several interesting clinical findings; for example the anti-streptolysin titer was increased in 40 per cent of the patients; that a hereditary predisposition was present; that the prognosis is fairly good with a mortality of only 8 per cent; and 29 per cent either severely or completely disabled; and that chronic iridocyclitis occurred much more frequently than was previously supposed. From these facts and others the author concludes that "manifestation of rheumatoid arthritis in children is a particular mode of reaction against the noxa or noxae producing rheumatoid arthritis."

This is an extremely good piece of work on a subject which is receiving a justifiable

amount of attention. It is doubtful whether all will agree with the author's conclusion, but he is to be complimented in preparing this monograph for the use of other investigators. A complete bibliography is given.

**ADJUSTMENT TO PHYSICAL HANDICAP AND ILLNESS: A Survey of the Social Psychology of Physique and Disability.** By Roger G. Barker in collaboration with Beatrice A. Wright, Lee Meyerson and Mollie R. Gonick. Paper. Pp. 440. Social Science Research Council, 230 Park Avenue, New York 17, 1953.

The second edition of this exhaustive work has been brought up to date. This book, which is packed with facts, is divided into eight sections, followed by an extensive bibliography. These sections are as follows: (1) Introduction, (2) Somatopsychological Aspects of Differences in Physical Size, Strength and Attractiveness, (3) Somatopsychological Significance of Crippling, (4) Psychology of the Tubercular, (5) Somatopsychological Significance of Impaired Hearing, (6) Somatopsychological Significance of Impaired Vision, (7) Social Psychology of Acute Illness and (8) Employment of the Disabled.

Since the authors are not physicians, they can be forgiven for using the word "tubercular" instead of "tuberculous" when referring to patients having tuberculosis. The last two sections will be of particular interest to those interested in physical medicine and rehabilitation and the entire book is, of course, a gold mine of facts concerning the somatopsychological aspects of physical handicap and illness. In considering the development of physical medicine and rehabilitation during World War II, the authors have concluded "it appears that a new interdisciplinary medical specialty is developing in which social-psychological problems loom large. It will be unfortunate if the zeal that is devoted to its applied and its physical aspects is not matched with basic research on the social-psychological problems that are involved."

The conclusions regarding occupational therapy in World War II are interesting. It is mentioned that two trends are discernable. One is a trend, "particularly among those who have developed the British Rehabilitation Centers," to depreciate "the value of occupational therapy." The other trend is to introduce in the place of traditional occupational therapy "highly motivated vocational activities." These have included "modern activities as photography, plastics, model-making, fly-tying, etc., in place of the traditional weaving, leather work, and basketry."

With regard to employment of the disabled, it is mentioned that "the basic motivation of the large expenditures for the vocational rehabilitation of disabled persons has been

economic, namely, to enable them to support themselves and thereby avoid the necessity of a lifetime of aid from public charity. However, the effectiveness of such a program depends upon the end result of employment; without this, the value of training is largely lost."

It is mentioned that "four means of coping with the problem of the disabled worker" have been proposed; namely, "a stringent labor market, humanitarian appeals, prohibition of discrimination against the disabled, and legislation obligating employers to include the disabled in the working force." It is pointed out that "each of these is in operation in some state or country and relevant data can be secured."

This book is highly recommended as a splendid source volume in its field. Every physician, therapist and social worker who is dealing with adjustment to physical handicap and illness will find it useful.

**TABER'S CYCLOPEDIA MEDICAL DICTIONARY.** Including A Digest of Medical Subjects, Medicine—Surgery—Nursing—Dietetics—Physical Therapy. By Clarence Wilbur Taber, Author, Taber's Vocabulary of Medical Terms, Taber's Dictionary for Nurses, Taber's Dictionary of Food and Nutrition, Dictionary of Gynecology and Obstetrics, etc. Sixth edition. Fabrikoid. Price, \$4.75. No pagination, with 298 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1953.

This new cyclopedic medical dictionary is comprehensive in scope and lists a great number of medical and related words. Also incorporated in the publication is a digest of medical subjects covering medicine, surgery, nursing, dietetics and physical therapy. The author states "... its (the book) purpose is to inform as well as to define, to provide not only an authoritative medical lexicon for meanings of words, but also extended information about the things that words symbolize. This dictionary is not content to define alone."

The edition contains 298 illustrations and has an excellent appendix. Included in this section of the dictionary is "The Interpreter" outlined in five languages specially arranged for diagnosis.

The volume is small and easy to handle. It should be in all medical libraries and available to all persons in medicine and related fields.

**APPLIED ANATOMY AND KINESIOLOGY.** The Mechanism of Muscular Movement. By Wilbur Pardon Bowen, M.S., Late Professor of Physical Education, Michigan State Normal College, Ypsilanti, Michigan. Seventh edition, revised. By Henry A. Stone, M.S., Supervisor, Department of Physical Education, University of California, Berkeley,

California. Cloth. Price, \$5.50. Pp. 465, illustrated with 261 engravings, 18 in color. Lea & Febiger, Washington Square, Philadelphia 6, 1953.

This text of some 465 pages and 261 illustrations is written in five parts. It is well organized and written in an interesting style. The anatomical plates are taken from standard anatomy texts.

Part I concerns the basic fundamentals of motion and machines, plus a superficial discussion of the intricate physiology and histology of muscles and muscle contractions. The chapters on mechanical principles and machines are presented in a concise and clear manner. These two chapters lay the groundwork for the cause and effect of the changes produced with contraction of our muscles. The next three sections deal with the kinesthology of the upper extremity, lower extremity and trunk, respectively. Part V attempts to evaluate complex activities of sports, such as walking, running, and jumping. The book is brief, to a fault in a few places, with incomplete evaluation of some functions. The text is written primarily for students in physical education, but is of value as a reference for physical therapists and interested physicians.

---

**FUNCTIONAL AND SURGICAL ANATOMY OF THE HAND.** By *Emanuel B. Kaplan*, M.D., F.A.C.S., Assistant Professor of Anatomy, College of Physicians and Surgeons, Columbia University; Attending Orthopedic Surgeon of the Hospital for Joint Diseases; Attending Orthopedic Surgeon of the Lebanon Hospital; Medical Director, Beth Abraham Home, New York City. Cloth. Price, \$10.00. Pp. 288, with illustrations. J. B. Lippincott Co., East Washington Square, Philadelphia 5, 1953.

This book is not exclusively for the hand surgeon as its title might imply. The main portion of the book is concerned with the description and exploration of structure and function of the hand. It discusses the hand as an organ, including the fundamental functions of the hand and principles of coordinated action. The surgical aspects are concerned with surgical anatomy, approaches, and reconstructive operations. The descriptions of structure are based, in part, on multiple dissection of human hands and hands of anthropoids and also upon electrical stimulation of muscles of the hand during surgical procedures. The conclusions on the mechanism of action of the fingers, thumb and wrist were obtained from cadaver and animal experiments, observations during surgery on known nerve injuries and electrical testing of individual muscles and muscle groups in the hand. The book is well illustrated with drawings based on multiple dissections by the author.

A more correct title of this work might be "Functional Anatomy of the Hand With Surgical Applications." This is an excellent treatise and a valuable addition to the reference library of anyone concerned with or interested in the problems of rehabilitation of the hand.

---

**SURGICAL PATHOLOGY.** By *Lauren V. Ackerman*, M.D., Professor of Surgical Pathology and Pathology, Washington University, School of Medicine; Surgical Pathologist, Barnes Hospital and Affiliated Hospitals, St. Louis; Consultant to the Ellis Fischel State Cancer Hospital, Columbia, Mo.; Consultant to the Armed Forces Institute of Pathology. Cloth. Price, \$14.50. Pp. 836, with 913 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1953.

This text was written for the medical student as well as for those physicians who are frequently concerned with surgical pathology. It is not intended to replace the textbooks of general pathology but rather to supplement them. Emphasis relative to subject matter has been placed on the more common rather than the rare lesions and are, to a great extent, based on the author's personal experiences. Throughout the text, an attempt has been made to correlate the gross pathology with the clinical observations. The text comprises twenty-five chapters covering the various organs and organ systems of the body. At the conclusion of each chapter are excellent bibliographies. The many illustrations are excellent, and the text can be highly recommended.

---

**THERAPEUTICS IN INTERNAL MEDICINE.** By eighty-four authorities. Edited by *Franklin A. Kyser*, M.D., F.A.C.P., Assistant Professor of Medicine, Northwestern University Medical School, Chicago. Contributors: *M. David Allweiss*, et al. Second edition. Cloth. Price, \$15.00. Pp. 830, with 3 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

This text on treatment in internal medicine represents the combined efforts of some eighty-four authorities in the various phases of internal medicine. Eighteen chapters covering treatment of the various diseases of the systems of the body, an appendix of useful diets and tables, plus a very fine index comprise the book. This is the second edition and differs from the first in that twelve new sections and seventeen new contributors have been added. The various subjects are well presented and yet not to the point of exclusion of other commonly accepted practices of treatment. The arrangement of the material is good. The book is highly recommended to all physicians.

**THE BASIS OF CLINICAL NEUROLOGY.** The Anatomy and Physiology of the Nervous System in Their Application to Clinical Neurology. By *Samuel Brock, M.D.*, Professor of Neurology, College of Medicine, New York University. Third edition. Cloth. Price, \$7.00. Pp. 510, with illustrations. The Williams & Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1953.

Textbooks of Neurology are always of interest to physicians specializing in Physical Medicine and Rehabilitation, as so large a part of this specialty is concerned with treatment of patients with neurologic disorders. This text serves as a very convenient reference source of the practitioner in this field, as well as serving as a standard teaching text for medical students. The emphasis is on details of anatomical structure and known specific functions of the nervous system. The material is well organized and clearly presented, although there is not as much diagrammatic presentations of function as might be wished by those interested primarily in locomotion.

There is a section on electromyography which should prove of particular interest to the physiatrist, although this young field tends to outgrow textbooks rather rapidly as it develops.

The book is recommended as an excellent reference for medical students and physiatrists, but it is beyond the level for use by physical therapists.

**BASIC SKILLS IN SPORTS FOR MEN AND WOMEN.** By *David A. Armbruster, Sr., M.A.*, Associate Professor of Physical Education and Head Swimming Coach, University of Iowa. Paper. Price, \$3.50. Pp. 325, with illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1953.

This is an interesting and well documented and illustrated text describing most recreational sports popular in this country. It should be a valuable addition to the libraries of those teaching and learning physical education and recreation as well as for the use of coaches and athletes, and camp directors.

No reference is made to applications in rehabilitation as the book is not intended to cover this subject.

**WATER, ELECTROLYTE AND ACID-BASE BALANCE.** Normal and Pathologic Physiology as a Basis for Therapy. By *Harry F. Weisberg, M.D.*, Assistant Professor of Clinical Pathology and of Clinical Medicine, The Chicago Medical School; Clinical Chemist, Mount Sinai Medical Research Foundation and Hospital; Associate Attending Physician, Cook County and Mount Sinai Hospitals; Chicago, Illinois. Cloth. Price, \$5.00. Pp. 245, with illustrations. The Williams &

Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1953.

The author concisely reviews the basic factors in this field and correlates them with current developments. The normal and pathologic physiology is discussed and applied as a basis for individualized therapy. The book contains expert guidance in accurate diagnosis and successful treatment of problems falling within its scope.

The bibliography is extensive and the text is well indexed. Essentially a monograph intended as a review and source book, it contains numerous tables and figures valuable for rapid summary or ready reference.

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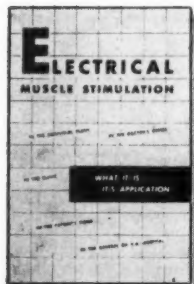


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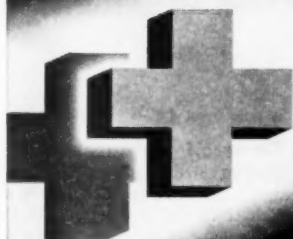
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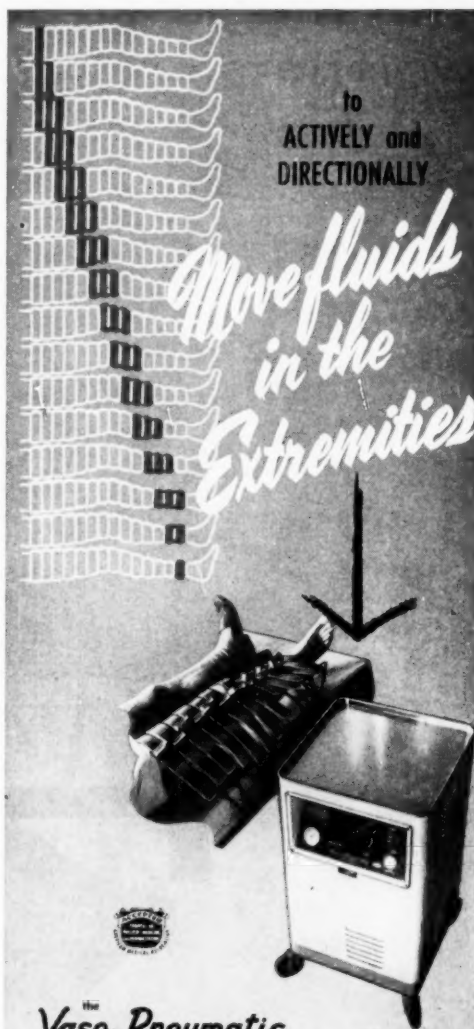
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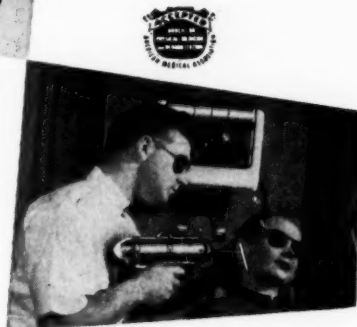
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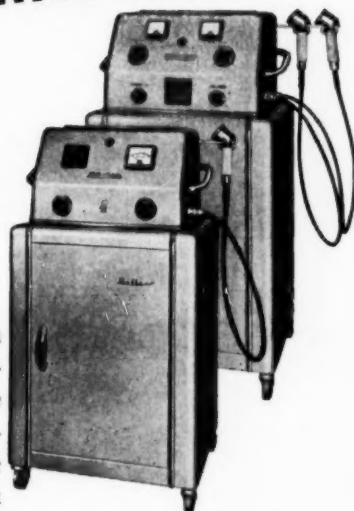
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To stimulate interest in the field of physical medicine and rehabilitation, the American Congress of Physical Medicine and Rehabilitation will award annually, a prize for an essay on any subject relating to physical medicine and rehabilitation. The contest, while open to anyone, is primarily directed to medical students, internes, residents, graduate students in the pre-clinical sciences and graduate students in physical medicine and rehabilitation. The Annual Awards Committee suggests that members of the American Congress and American Society of Physical Medicine and Rehabilitation bring this announcement to the attention of interested persons. The following rules and regulations apply to the contest:

1. Any subject of interest or pertaining to the field of physical medicine and rehabilitation may be submitted.

2. Manuscripts **must be** in the office of the American Congress of Physical Medicine and Rehabilitation, 30 N. Michigan Ave., Chicago 2, not later than June 1, 1954.

3. Contributions will be accepted from medical students, internes, residents, graduate students in the pre-clinical sciences, and graduate students in physical medicine and rehabilitation.

4. The essay must not have been published previously.

5. The American Congress of Physical Medicine and Rehabilitation shall have the exclusive right to publish the winning essay in its official journal, the **ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION**.

6. Manuscripts must not exceed 5000 words (exclusive of headings, references, legends for cuts, tables, etc.), and the number of words should be stated on the title page. An original and one carbon copy of the manuscript must be submitted.

7. The winner shall receive a cash award of \$200, a gold medal properly engraved, a certificate of award and an invitation to present the contribution at the 32nd Annual Session of the American Congress of Physical Medicine and Rehabilitation at the Hotel Statler, Washington, D. C., September 6-11, 1954.

8. The winner shall be determined by the Annual Awards Committee composed of four members of the American Congress of Physical Medicine and Rehabilitation.

9. All manuscripts will be returned as soon as possible after the name of the winner is announced.

10. The American Congress of Physical Medicine and Rehabilitation reserves the right to make no award if, in the judgment of the Annual Awards Committee, no contribution is acceptable. The Congress may also award certificates of merit to contributors whose essays may be considered second and third best submitted. Announcement of the winner will be made after the annual meeting. Officers and members of the American Congress and the American Society of Physical Medicine and Rehabilitation are not eligible for this award.

$$\begin{array}{l}
 V = f \lambda \\
 \lambda = \frac{V}{f} \\
 f = \frac{V}{\lambda}
 \end{array}$$

$V$  = velocity  
 $f$  = frequency  
 $\lambda$  = wavelength

... *And now*

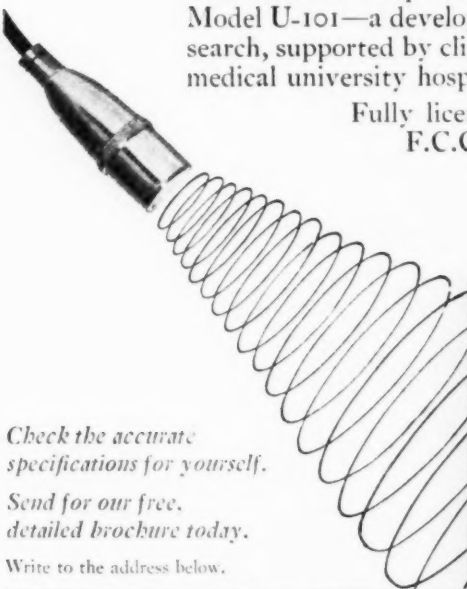
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